



**MID-LEVEL HEALTH WORKER  
REFERENCE MANUALS**

# **FORMULARY DIAGNOSTIC AND PATIENT CARE GUIDES**





02114



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After completion of extensive field trials in Micronesia and in primary health care programs in Lesotho, Guyana, Pakistan, and Thailand, the methods and materials of the MEDEX technology have been published as The MEDEX Primary Health Care Series. The Series provides a systematic, practical, adaptable format for management and training in new or existing primary health care programs at all levels.

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**The MEDEX Primary Health Care Series**

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# **FORMULARY**

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# Introduction

The Formulary is a reference manual. Use it with the Diagnostic and Patient Care Guides and the Patient Care Procedures reference manuals in your health center.

Dispensing drugs will be an important part of your work as a mid-level health worker. You will use drugs to prevent or treat disease. This Formulary contains the information that you will need to use and dispense drugs safely and effectively.

This Formulary is divided into two sections. The first section includes information about how to take a drug history, how to calculate drug doses, the importance of giving instructions to the patient, and how to label containers of drugs before you dispense them. The end of the first section includes a discussion of common drug interactions.

The second section includes information about specific drugs. The drugs are listed according to categories of use, for example, antibacterials or gastrointestinal drugs. Each drug entry includes a description in the following order.

**FORMS** Information about the form in which the drug is supplied and what dosages are available

**USES** A statement about the conditions for which the drug can be used

**DOSAGES** Information about the usual adult and child dosages

**SIDE EFFECTS** Information about the most common side effects of the drug

**WARNING** Warnings to alert the mid-level health worker to precautions that he should take when using and dispensing the drug

**STORAGE** Information about the proper storage to maintain the effectiveness of each drug

**PATIENT INSTRUCTIONS** Suggestions about what information to tell the patient about the drug, including how to take the drug, how often and how much to take, a description of the possible side effects, and why the drug is being given







# Prescribing and Dispensing Drugs at the Health Center

## Obtaining a Drug History

Before you prescribe or dispense a drug, always ask the patient whether he has taken the drug before. If he has taken the drug before, ask him if he had any difficulty with the drug. Ask him if he suffered any reactions. Ask him if he had to stop taking the drug. If the patient has had any allergic reaction to a drug, label his Patient Card with this information so that no one will give him the drug again.

Find out what drugs the patient is taking at the present time. Ask him why he is taking each drug. Ask him who prescribed the drug. Ask him to bring his drugs to the health center. When he brings you his drugs, you can be certain of what drugs he is taking. Patients easily become confused when they must take more than one drug.

If two different people are taking care of a patient at the health center, the person who dispenses the drugs should also check the patient's drug history. Make certain that you do not give the patient a drug that has caused him a problem before.

## Measuring Drug Dosages

### Common Measures

1000 milligrams (mg)	= 1 gram (g)
1000 g	= 1 kilogram (kg)
1000 milliliters (ml)	= 1 liter (l)
5 ml	= 1 teaspoon
15 ml	= 3 teaspoons or 1 tablespoon

Drugs that the patient takes by mouth usually come in liquid or solid form. The solid drugs often come in tablet form. Less frequently they come in the form of powder inside a hollow piece of gelatin called a capsule. Tablets are frequently marked into halves so that they can be broken into two even parts. Capsules are difficult to divide evenly. Avoid dividing capsules.

The average dose of a drug, as shown in this Formulary, will give you some information about how strong the drug is. For example, the

average adult dose of aspirin is 600 mg. In contrast, the recommended dose of glyceryl trinitrate is only 0.4 mg. Thus, 600 mg of aspirin is required to achieve its desired effect, while only 0.4 mg of glyceryl trinitrate produces the desired effect of that drug. You must take great care in measuring and giving powerful drugs that are effective in very small doses. Only a small error in measurement of a powerful drug may be quite dangerous.

Solid drugs in tablet form usually weigh less than 500 mg. Larger tablets are difficult to swallow. Many drugs that you give to adults as tablets, you must give to small children in liquid form. If the liquid form of the drug is not available, you may crush the tablet in some water so that the child can swallow the drug. You may also empty a capsule into water and have the patient drink it. However, drugs that have an unpleasant taste will be difficult to give in this way.

For adults, the standard dose of the drug is usually sufficient. However, the amount of the drug that you must give to children often appears in this Formulary on the basis of the child's body weight. The Diagnostic and Patient Care Guides provide a simplified dosage schedule so that you do not need to calculate the dose each time. However, you should understand how to calculate dosages.

To calculate the amount of a solid drug that a patient requires, simply multiply the patient's weight by the recommended dose per kg of body weight. For example, the recommended dose of thiacetazone is 2 mg per kg of body weight per day as a single dose. If the patient weighs 24 kg, multiply the patient's weight by the recommended dose of 2 mg per kg. By this calculation, you should give the patient 48 mg of thiacetazone. Thiacetazone tablets come in 50 mg, 75 mg, and 100 mg size. So the patient can take either one 50 mg tablet per day or half of a 100 mg tablet per day.

Many drugs come in liquid form. The smallest commonly used unit of liquid measure for



oral use is one milliliter (ml). An average large teaspoon contains approximately 5 ml of liquid. A cup contains about 200 ml of liquid. Always show the patient how much liquid he must take. Have some teaspoons at the health center. Ask the patient to bring a teaspoon from home so that you can use it to demonstrate how much liquid he should take. Different teaspoons may hold different amounts of liquid.

This Formulary indicates the amount of drug in a given volume of liquid. From this information you must calculate the number of ml of liquid the patient must take in each dose. For example, the drug to be given is the 500 mg/5 ml mixture of sulfadimidine. You must calculate how many ml of the liquid will contain the recommended number of mg of the drug. If the patient is a child who weighs 20 to 30 kg, the recommended initial dose of sulfadimidine is 1.5 g (1500 mg). Divide the recommended dose by the amount of drug in 5 ml of liquid.  $1500 \text{ mg} \div 500 \text{ mg} = 3$ . By this calculation, you must give the patient 3 multiplied by 5 ml, or 15 ml of the liquid drug.

Dispensing Drugs

The entries in this Formulary are intentionally short. The mid-level health worker must read the entire entry before prescribing or administering the drug.

Before you dispense a drug, you must have the following information.

- a. Name of the drug
- b. Route of administration—oral, intramuscular, intravenous, subcutaneous, intradermal
- c. Quantity of drug the patient must take at each interval
- d. Number of times each day the patient must take the drug
- e. Total length of time the patient must take the drug

Locate the stock bottle and place it in the dispensing area. Then compare the name of the drug with the prescribed drug.

Check the size of the tablets, or the concentration of the liquid preparation of the drug.

Check the expiration date on the stock bottle. Make certain that the drug has not become outdated.

Calculate the total amount of drug that the patient will need. If the patient has a chronic condition, give him enough drug to last until his next visit.

Measure the necessary amount of drug into a container. If you do not have a supply of containers at the health center, ask the patients to bring small bottles or jars. Small plastic bags or plastic wrap is also satisfactory. Old newspaper or other paper is least satisfactory because it easily gets wet and the tablets or capsules become damaged.

You must put a label on a drug container for several important reasons.

- a. A label will help the patient to remember how often, and for how long he must take the drug. Even if the patient cannot read, he may have a friend who can read the label for him.
- b. If the patient has a reaction to the drug, or if he takes too much of it, a proper label will help the person treating the reaction to identify the drug.
- c. When the patient returns with the container, you will be able to determine the exact amount of drug that the patient has taken. Always ask the patient to bring his drugs with him when he comes to the health center.

Printed labels may be expensive or unavailable. However, you can mimeograph a simple label, such as the following, on plain paper.

Patient's Name \_\_\_\_\_ Date \_\_\_\_\_

Drug \_\_\_\_\_ Reason for Taking \_\_\_\_\_

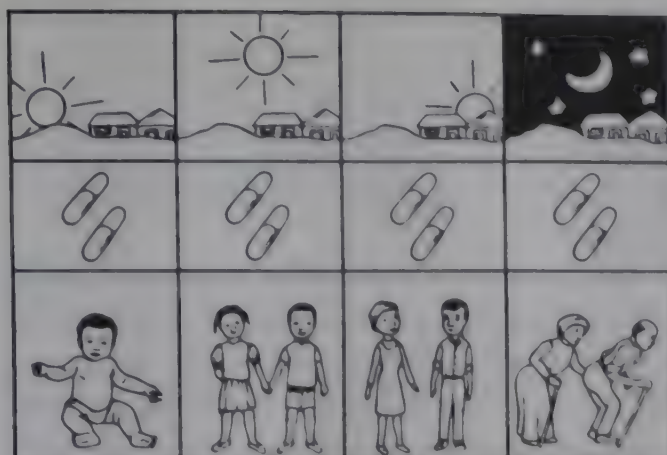
Instructions \_\_\_\_\_

Amount Dispensed \_\_\_\_\_ Signature \_\_\_\_\_

If the patient cannot read, a label with symbols may help him to remember how to take the drug. However, you must explain the symbols to the patient in order for him to understand what they mean.

The following label is an example of one that you can use to help a patient who cannot read. It will help him to remember how much drug to take and when to take it.

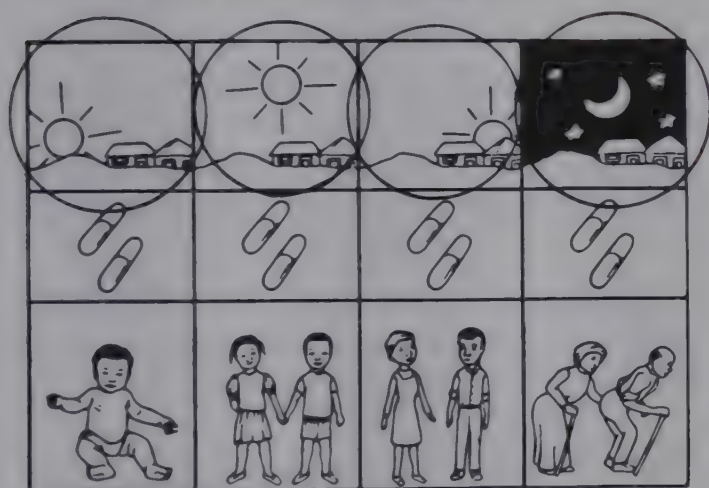




Attach the label to all packets and bottles of drugs that you dispense.

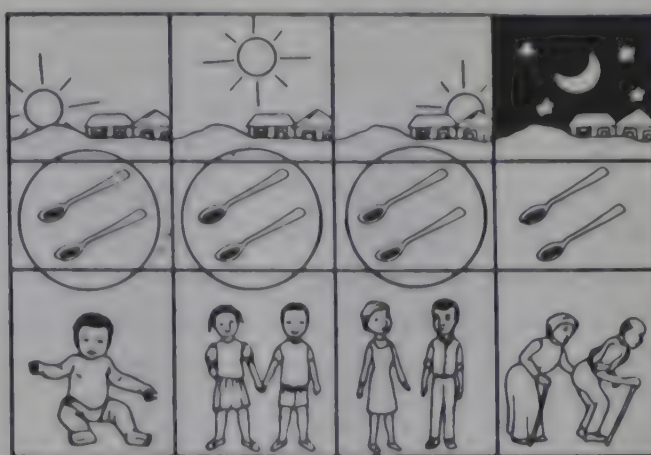
The symbols on the label tell the patient how often to take the drug, how much of the drug to take, and who is supposed to take the drug. To use the label, follow these instructions, using the example as a guide.

1. Circle the time of day that the patient is to take the drug. In the example, all four symbols are circled. This means that the patient is to take the drug in the morning, when the sun is high in the afternoon, as the sun is setting, and after dark. If you want the patient to take the drug for one, two, or three times a day, circle the times of day that you want him to take the drug.

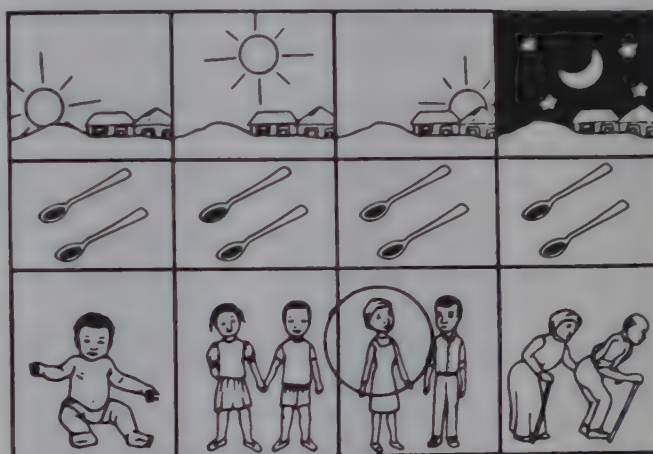


2. Just below the symbol for the time of day, draw in a symbol for how much of the drug you want the patient to take. In the example, symbols showing two tablets appear below each of the circled times of day. This means that the patient is to take two tablets at four different times of the day.

If you are dispensing a liquid, draw a picture of how many teaspoons of liquid you wish the patient to take. The following is an example of a label that shows the patient should take two teaspoons of the liquid three times a day, in the morning, in the afternoon, and at sunset.



3. Circle who the drug is intended for. In the example, the woman is circled. This means that the drug inside the packet or bottle is intended for a young or middle-aged woman. If the drug is intended for a baby, circle the baby. When the patient has many packets or bottles of drugs at home, this symbol will help him to decide which person the drug is intended for.



When you give the packet or bottle of the drug to the patient, explain the instructions on the label. Make sure that the patient understands how often and how much of the drug he is to take. Ask the patient to repeat the instructions to you so that you can be assured that he has understood your directions.

### Instructing the Patient

When you dispense a drug to the patient, show him the label and review the instructions carefully. First, tell him what the drug is supposed to do. Write this on the label.

Tell the patient how much of the drug he should take each time. If possible, have the patient take the first dose immediately, while you are talking with him.

Explain carefully how many times a day the patient must take the drug. Help him to think of times when he will most likely remember to take the drug. Explain whether he should take the drug before, during, or after meals.



Give the patient any additional information that he should have about the drug. Describe common side effects. Encourage the patient to continue to take the drug even if these common side effects occur. Warn him of other possible side effects, and advise him to return to the health center if they should develop.

If the drug is a liquid that the patient should shake up before use, instruct him to do so.

When you use a label with symbols on it, show the patient the symbols. Explain the meaning of each symbol so that the patient understands them all.

Warn the patient to keep the drug in a safe place away from children.

### Checking the Patient's Understanding

Make sure that the patient understands the directions that you have given to him. Checking the patient's understanding requires extra time. But it is very important. If the patient does not understand how to take the drug, he will not do so properly. He will not benefit from the drug.

When you have finished instructing the patient, ask him to tell you how he will take the drug. Ask him how much he will take each time. Ask him how long he will continue to take the drug. Ask him what the drug is for. Have the patient describe any common side effects and other possible side effects that you have told him about.

Correct any misunderstandings the patient has about the drug you are giving him. This is a very important part of dispensing drugs.

### Side Effects

The unwanted effects of drugs are often called side effects. Nearly every drug will cause side effects in some patients. And nearly every drug will cause side effects when the patient takes too large a dosage. Sometimes side effects are so serious that you must tell the patient to stop taking the drug. Or you must reduce the dosage so that the side effects decrease or go away.

Sometimes drugs may cause the patient to have an allergic reaction. Allergic reactions usually occur in the skin or in the heart and lungs. The Diagnostic and Patient Care Guide for Skin Reactions to Drugs, and for Anaphylactic Shock discuss symptoms, signs, and patient care for these allergic reactions. Allergic

reactions can also occur in the intestines, the kidneys, the blood, and elsewhere in the body. If you suspect that the patient is having such an allergic reaction, tell him to stop taking the drug and transfer him to a hospital for further evaluation.

Drugs can cause side effects that resemble almost every symptom or sign of disease. However, the most common side effects of drugs that the patient takes by mouth are nausea, vomiting, pain in the abdomen, and diarrhea. Drugs that act on the nervous system may cause convulsions, excitement, drowsiness, or coma, if the patient takes too large a dosage.

Some drugs cause side effects in nearly everyone who takes the drugs. These side effects are often called common side effects. You must tell the patient about common side effects so that he will expect them. And you must encourage the patient to continue to take the drugs in spite of these common side effects.

Other side effects occur less frequently. Although you need not tell the patient about every possible side effect, you should explain that side effects are possible. Advise the patient to return and tell you about any new symptoms that he has developed since he started to take the drug.

This Formulary includes a brief paragraph for each drug describing the most important or most serious side effects. The Patient Instructions section for each drug includes common side effects that you should describe to the patient.

In all cases that a drug is contraindicated for newborns or infants, the Warning section of the entry states the contraindication.

### Prepacking Drugs

You will find that you dispense certain drugs very frequently. For example, you will give most prenatal patients iron and folic acid tablets. You will dispense aspirin for a large number of conditions. You will give ferrous sulfate tablets to anemic patients.

To save time and effort, count out these drugs and place them in containers before clinic hours. This is called prepacking. You can do this work. Or you can have one of your assistants do it when the health center is not busy. Be sure to count the drugs, put them in containers, and label them with proper instructions.



### Storage

In this Formulary, the term "room temperature" indicates 15° to 25° C. The term "cool place" indicates a place where the temperature does not exceed 15° C.

### Drug Interactions

When the patient takes two drugs together, one drug may increase or decrease the effect of the other drug. This is called a drug interaction, because the drugs act upon each other.

The most important drug, alcohol, is one that the patient takes without your advice. You must warn him that very often alcohol will dangerously increase or dangerously decrease the effect of the drug that he is taking.

Antacids often interfere with the action of other drugs that the patient is taking by mouth. The following table lists some common drug interactions.

## DRUG INTERACTIONS

IF THE PATIENT IS TAKING:	AND ALSO TAKING:	THE RESULT MAY BE:
Aspirin	Alcohol	Stomach bleeding
	Para-aminosalicylic acid	Increased side effects and decreased effectiveness of para-aminosalicylic acid
Chloramphenicol	Amobarbital, phenobarbital, phenytoin sodium	Increased effect of amobarbital, phenobarbital, or phenytoin sodium
Isoniazid	Alcohol, antacid	Decreased effect of isoniazid
Penicillin	Antacid	Decreased effect of penicillin
Sulfadiazine, sulfadimidine	Antacid	Decreased effect of sulfadiazine or sulfadimidine
Tetracycline	Antacid, iron	Decreased effect of tetracycline
Chlorpheniramine	Alcohol, morphine, pethidine, phenobarbital	Increased sedation
Diazepam	Alcohol, pethidine, morphine, phenobarbital	Increased sedation
Phenobarbital	Alcohol, chlorpheniramine, diazepam, morphine, pethidine	Increased sedation
	Phenytoin sodium	Decreased effect of phenytoin sodium
Phenytoin sodium	Alcohol	Decreased effect of phenytoin sodium
	Chloramphenicol	Increased effect of phenytoin sodium



# ANTHELMINTICS

## NICLOSAMIDE (Yomesan)

### FORM

Chewable tablets, 500 mg

### USE

Niclosamide is effective against most tapeworms.

### DOSAGES

Give as a single dose, or divided into two doses one hour apart.

Adults	2 g
Children	
26 kg and over	1.5 g
12 to 26 kg	1 g
Under 12 kg	500 mg

### SIDE EFFECTS

Niclosamide sometimes causes stomach irritation and discomfort.

### WARNING

None

### STORAGE

Store at room temperature.

### PATIENT INSTRUCTIONS

1. Do not eat any solid food on the evening before this treatment.
2. In the early morning, take the drug before you eat or drink anything.
3. Chew the tablets thoroughly before you swallow them.
4. You may eat two hours after taking the drug.
5. This drug may cause some discomfort and stomach upset.
6. Store the drug at room temperature. Keep it out of reach of children.

## PIPERAZINE HYDRATE (Antepar, Helmezone)

### FORM

Elixir, 150 mg/ml

### USES

Piperazine is effective against roundworms and pinworms. However, it is not the recom-

mended drug for pinworms because treatment requires one week.

### DOSAGES

For roundworms, give the patient piperazine with his evening meal on two successive days. If the symptoms return, repeat the dosage after one month.

Adults	30 ml
Children	
20 kg and over	20 ml
15 to 20 kg	15 ml
10 to 15 kg	10 ml
Under 10 kg	5 to 10 ml

If pyrantel pamoate is not available, you may use piperazine in the treatment of pinworms. However, the patient must take the drug twice daily for seven days. If the symptoms return, repeat the dosage after one month.

Adults and children	
30 kg and over	7 ml twice a day
20 to 30 kg	5 ml twice a day
10 to 20 kg	2.5 ml twice a day

### SIDE EFFECTS

Sometimes, piperazine causes nausea, vomiting, diarrhea, abdominal pain, headaches, and itchy skin.

### WARNING

Do not give piperazine to patients who have liver disease or epilepsy.

### STORAGE

Store in an airtight container in a cool place. Protect from light.

### PATIENT INSTRUCTIONS

#### For roundworms

1. Take the drug with your evening meal.
2. If you are constipated, take a laxative the next morning. This will eliminate the worms from your body before the effect of the drug wears off.
3. This drug may cause you to have an upset stomach, diarrhea, headache, or itchy skin. However, continue to take the drug.



4. Store the drug where children cannot reach it. Keep it in a cool place.

#### For pinworms

1. Take the drug in the morning and at night with your meal. Continue to take the drug for seven days.
2. This drug may cause you to have an upset stomach, diarrhea, headache, or itchy skin. However, continue to take the drug.
3. Store the drug where children cannot reach it. Keep it in a cool place.

### BEPHENIUM HYDROXYNAPHTHOATE (Bephenium granules, Alcopar)

#### FORM

Granules, 2.5 g base, in 5 g packet

#### USES

Bephenium is effective against roundworms and hookworms.

#### DOSAGES

Give as a single dose.

Adults and children	
20 kg and over	5 g
Children	
Under 20 kg	2.5 g

#### SIDE EFFECTS

Bephenium occasionally causes nausea, diarrhea, vomiting, headaches, and light-headedness.

#### WARNING

None

#### STORAGE

Store in an airtight container.

#### PATIENT INSTRUCTIONS

1. Mix the granules with water, and take the drug at least four hours after eating or drinking anything.
2. You may eat and drink one hour after you take the drug.
3. This drug sometimes causes nausea, vomiting, diarrhea, headache, and light-headedness.
4. Keep the drug in an airtight container out of reach of children.

### TETRACHLORETHYLENE

#### FORM

Capsules, 1 ml, 2.5 ml, and 5 ml

#### USE

Tetrachlorethylene is active against hookworm infections.

#### DOSAGES

Measure the dosage carefully, and give by mouth with a syringe. Give early in the morning, after an all-night fast.

Adults and children	
40 kg and over	5.0 ml
36 to 40 kg	4.5 ml
31 to 36 kg	4.0 ml
26 to 31 kg	3.5 ml
20 to 26 kg	3.0 ml
13 to 20 kg	2.0 ml
5 to 13 kg	1.0 ml

#### SIDE EFFECTS

Tetrachlorethylene causes nausea, vomiting, abdominal pain, headache, and light-headedness.

#### WARNING

Do not treat patients with tetrachlorethylene if you suspect that they have both roundworms and hookworms. Treat the roundworms first.

Do not use this drug in patients who have liver disease, who are alcoholics, or who are severely anemic.

#### STORAGE

Store in an airtight container in a cool place. Protect from light.

#### PATIENT INSTRUCTIONS

1. Do not eat any fatty foods or drink alcohol for twenty-four hours before and after taking this drug.
2. Eat only a light meal on the night before treatment.
3. Remain in bed for at least four hours after taking the drug. This drug will make you feel very light-headed. It may also cause upset stomach, abdominal pain, diarrhea, and headache.
4. This drug is poisonous. Keep it in a cool place, in an airtight container, and out of reach of children.



**PYRANTEL PAMOATE (Pyrantel Embonate, Antiminth, Helmex)**

**FORM**

Oral suspension, 250 mg/5 ml

**USES**

Pyrantel pamoate is effective against roundworms, hookworms, and pinworms.

**DOSAGES**

For roundworms or pinworms, give as a single dose.

Adults and children		
40 kg and over	10 ml (500 mg)	
Children		
30 to 40 kg	7.5 ml (375 mg)	
12 to 30 kg	5 ml (250 mg)	
Under 12 kg	2.5 ml (125 mg)	

For hookworms, or mixed infections with roundworms and hookworms, give as a single dose.

Adults and children		
40 kg and over	20 ml (1 g)	
Children		
30 kg to 40 kg	15 ml (750 mg)	
12 to 30 kg	10 ml (500 mg)	
Under 12 kg	5 ml (250 mg)	

**SIDE EFFECTS**

Pyrantel pamoate may cause nausea, headache, dizziness, and rashes.

**WARNING**

Do not use this drug in patients who have liver disease.

**STORAGE**

Protect from light.

**PATIENT INSTRUCTIONS**

- 1. This drug may cause some stomach upset, headache, dizziness, or skin rash.
- 2. Keep the drug out of reach of children. Protect it from light.

**DIETHYLCARBAMAZINE CITRATE (Hetrazan, Banocide)**

**FORM**

Tablets, 50 mg

**USE**

Diethylcarbamazine is effective in the treatment of onchocerciasis.

**DOSAGES**

In the treatment of onchocerciasis, begin by giving betamethasone. Give the patient 0.6 mg of betamethasone three times a day for one week, followed by 0.6 mg daily for two additional weeks.

Twenty-four hours after starting the betamethasone tablets, start treatment with diethylcarbamazine. Begin with a small dose, because the death of large numbers of worms can cause a severe allergic reaction. Begin treatment with one third of the full dose. Increase the daily dosage gradually over four to six days. Continue treatment for three weeks. If the patient has severe allergic reactions, increase the drug dosage more slowly.

WEIGHT OF PATIENT	INITIAL DOSE	FULL DOSE
40 kg and over	100 mg daily	100 mg three times a day
20 to 40 kg	50 mg daily	50 mg three times a day
10 to 20 kg	25 mg daily	25 mg three times a day
5 to 10 kg	12.5 mg daily	12.5 mg three times a day

**SIDE EFFECTS**

Nausea, vomiting, headache, dizziness, and loss of appetite occur infrequently and should not require stopping treatment.

**WARNING**

In cases of heavy infection, the dead worms can cause severe allergic reactions in the body. The symptoms include fever, tender swelling in the skin, muscle pain, and skin rash.

**STORAGE**

Store in an airtight container.

**PATIENT INSTRUCTIONS**

- 1. Take the drug once on the first day. Then take it twice on the second day.
- 2. From the third day on, take the drug in the morning, at noon, and at night.
- 3. Continue to take the drug for three weeks.
- 4. This drug can cause upset stomach, headache, and dizziness. However, these side effects should not cause you to stop taking the drug.
- 5. If you start having fever, painful swelling in your skin or muscles, a rash, or problems with your eyes, come back to the health center right away.
- 6. Keep the drug out of reach of children.



# ANTIBACTERIALS

## AMPICILLIN

### FORMS

Capsules, 250 mg  
Ampicillin for oral suspension, 125 mg/5 ml  
Ampicillin sodium injection, 500 mg vials

### USES

Ampicillin is effective against a broad range of bacteria, including bacterial infections of the throat, chest, skin, and genitourinary tract.

### DOSAGES

The range of recommended dosages and length of treatment depend upon the type and severity of the infection. Give every six hours for the length of time indicated by the Diagnostic and Patient Care Guide for the specific condition you are treating.

	MILD TO MODERATE INFECTION	SEVERE INFECTION
	Oral capsules or suspension	Intra- muscular
Adults and children 40 kg and over	750 mg	1500 mg
Children		
20 to 40 kg	500 mg	1000 mg
10 to 20 kg	250 mg	500 mg
5 to 10 kg	125 mg	250 mg
Under 5 kg	60 mg	125 mg

In meningitis, or other specific conditions, give ampicillin intravenously or intramuscularly, every four to six hours.

Adults	1 g
Children	100 mg per kg body weight to a maximum of 1 g per dose

In treatment of gonorrhea, give 3.5 g plus 1 g of probenecid by mouth as a single dose treatment.

### SIDE EFFECTS

Ampicillin can cause allergic reactions. Most frequently, the skin rash is a generalized, maculo-papular rash that itches. Warn the patient to stop taking the drug and return to the clinic if he develops a rash.

### WARNING

Do not give ampicillin to patients who have a history of allergic reaction to either penicillin or ampicillin.

Use ampicillin very cautiously in patients who have any kind of allergic history such as asthma or eczema.

You must keep epinephrine and a small syringe and needle on hand at all times at the health center. Do not administer antibiotics unless you have these supplies ready to use. If the patient suddenly develops the symptoms and signs of anaphylactic shock, carry out the following procedures.

- Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.
- Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages.

Adults and children 40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc

- Record the patient's pulse, respiratory rate, and blood pressure every five minutes.
- If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.
- If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.
- If the patient has swelling and itching of the skin, give him 10 mg of chlorpheniramine IM. Give children 0.5 mg per kg of estimated body weight, up to a maximum dosage of 10 mg.
- If signs of shock continue for more than thirty minutes, transfer the patient to a hos-



pital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

Treat less severe reactions with an antiallergy drug. See the Diagnostic and Patient Care Guide for Skin Reactions to Drugs.

#### STORAGE

1. Store in an airtight container in cool place.
2. Use within one week after you have added water to the dry powder.

#### PATIENT INSTRUCTIONS

1. Take this drug every six hours each day for \_\_\_\_\_ days. Shake the liquid well before taking it.
2. The drug works best if you take it about thirty minutes before mealtime, when your stomach is empty. Take it also at bedtime.
3. This drug can cause you to have an itchy skin rash. If you develop a rash, stop taking the drug right away, and come back to the health center.
4. Keep the bottle in a cool place. Throw away the drug that you have not used after ten days.
5. Keep the drug out of reach of children.

### BENZYL PENICILLIN G (Crystalline Penicillin, Aqueous Penicillin)

#### FORM

Dry powder to which sterile water is added for injection, 300 mg/ml

#### USES

Benzylpenicillin G is effective against many bacteria, especially infections of the ears, nose, throat, chest, and skin. An intramuscular injection provides high blood levels rapidly.

#### DOSAGES

Use benzylpenicillin G in severe infections. Give an intramuscular injection every four to six hours. Continue the drug for at least five days. However, if the patient shows improvement, you may switch to oral penicillin V after twenty-four to forty-eight hours.

Adults and children	
40 kg and over	500 mg

Children	
20 to 40 kg	300 mg
10 to 20 kg	200 mg
5 to 10 kg	75 mg
Under 5 kg	75 mg

#### SIDE EFFECTS

The patient can suffer severe anaphylactic reactions, with shock, in a few minutes after intramuscular injection. Less severe reactions include generalized skin rash with severe itching, fever, joint pains, and swelling of the face.

#### WARNING

Do not give a penicillin injection to a patient who has a history of allergy to penicillin.

You must keep epinephrine and a small syringe and needle on hand at all times at the health center. Do not administer antibiotics unless you have these supplies ready to use. If the patient suddenly develops the symptoms and signs of anaphylactic shock, carry out the following procedures.

- a. Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.
- b. Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages.
 

Adults and children	
40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc
- c. Record the patient's pulse, respiratory rate, and blood pressure every five minutes.
- d. If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.
- e. If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.
- f. If the patient has swelling and itching of the skin, give him 10 mg of chlorpheniramine IM. Give children 0.5 mg per kg of estimated body weight, up to a maximum dosage of 10 mg.



- g. If signs of shock continue for more than thirty minutes, transfer the patient to a hospital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

Treat less severe reactions with an antiallergy drug. See the Diagnostic and Patient Care Guide for Skin Reactions to Drugs.

STORAGE

- 1. Use within twenty-four hours after diluting with water, if kept at room temperature.
- 2. Use within seven days after dilution, if kept at between 2° and 10° C.

PATIENT INSTRUCTIONS

This drug may cause an itchy skin rash, fever, swelling, and pain in the joints.

BENZATHINE PENICILLIN

FORM

Suspension in water for injection, 300 mg/ml and 600 mg/ml

USES

Benzathine penicillin is effective in the treatment of bacteria that are very sensitive to penicillin. These germs include syphilis and certain kinds of skin and throat infections. Use benzathine penicillin in the prevention of rheumatic fever. Benzathine penicillin, given intramuscularly, provides a low level of penicillin in the blood, which lasts for two to four weeks.

DOSAGES

In the prevention of rheumatic fever, give 1200 mg once a month. In the treatment of primary and secondary syphilis, give 1800 mg as a single injection.

Give a single injection of 300 mg to 600 mg to children for the treatment of impetigo and bacterial tonsillitis.

SIDE EFFECTS

- 1. The site of injection may become very painful and tender.
- 2. Benzathine penicillin can cause the same types of allergic reactions as other kinds of

penicillin. These include skin rash, fever, joint pains, and generalized swelling. However, the reaction may not appear for one to two weeks.

WARNING

If the patient has a history of allergy to penicillin, do not use benzathine penicillin.

You must keep epinephrine and a small syringe and needle on hand at all times at the health center. Do not administer antibiotics unless you have these supplies ready to use. If the patient suddenly develops the symptoms and signs of anaphylactic shock, carry out the following procedures.

- a. Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.
- b. Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages.

Adults and children	
40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc

- c. Record the patient's pulse, respiratory rate, and blood pressure every five minutes.
- d. If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.
- e. If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.
- f. If the patient has swelling and itching of the skin, give him 10 mg of chlorpheniramine IM. Give children 0.5 mg per kg of estimated body weight, up to a maximum dosage of 10 mg.
- g. If signs of shock continue for more than thirty minutes, transfer the patient to a hospital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

Treat less severe reactions with an antiallergy



drug. See Diagnostic and Patient Care Guide for Skin Reactions to Drugs.

STORAGE

Store benzathine penicillin at between 2° and 8°C in an airtight container. Protect from light. Discard on expiration date.

PATIENT INSTRUCTIONS

- 1. This injection may cause you to develop a skin rash. The rash may develop within one to two weeks. You may also have fever, swelling, and pain in your joints. If these problems occur, come back to the health center immediately.
- 2. You may also have some pain at the place where the drug was injected. This pain should not last more than one to two days.

PENICILLIN V  
(Phenoxymethylpenicillin)

FORMS

Tablets, 125 mg and 250 mg  
Dry mixture for oral suspension, 250 mg/5 ml

USES

Penicillin V is effective in certain infections of the ears, sinuses, throat, chest, and soft tissues. Penicillin V is quickly absorbed through the intestines.

DOSAGES

Give by mouth, every six hours for the number of days indicated by the Diagnostic and Patient Care Guide for the specific condition you are treating.

Adults and children	
40 kg and over	500 mg
Children	
20 to 40 kg	250 mg
10 to 20 kg	125 mg
5 to 10 kg	60 mg
Under 5 kg	60 mg

SIDE EFFECTS

Allergic reactions to penicillin V are very rare. However, the patient may develop skin rash, fever, joint pains, and generalized swelling.

WARNING

Penicillin V can cause allergic reactions. Do not give this drug to patients with a history of penicillin allergy.

STORAGE

After you have added water, the oral suspension will remain effective for one week at room temperature. Discard the drug after this period of time. Discard the drug after two weeks if it is kept at 2° to 8°C.

PATIENT INSTRUCTIONS

- 1. Foods and liquid in the stomach will interfere with this drug. Take the drug at least thirty minutes before mealtime or two hours after mealtime.
- 2. Take the drug every six hours. For the best results, take it before each meal and at bed time.
- 3. Shake the oral suspension before using it. Keep the bottle in a cool place. Throw the bottle away after two weeks.
- 4. This drug can cause reactions, including skin rash and fever. If these reactions occur, stop taking the drug. Return to the health center immediately.
- 5. Keep the drug out of reach of children.

PROCAINE PENICILLIN G

FORM

Sterile suspension for injection, 300 mg/ml and 600 mg/ml

USES

Procaine penicillin G is effective for serious infections of the skin, ear, throat, and lungs. Use procaine penicillin G when the patient is not likely to take penicillin regularly by mouth. This type of penicillin maintains blood levels for up to twenty-four hours.

DOSAGES

Give one injection every twenty-four hours. For more severe infections, give one injection every twelve hours. Continue to give the drug for the length of time indicated by the Diagnostic and Patient Care Guide for the specific condition you are treating.

Adults and children	40 kg and over	900 mg
Children	20 to 40 kg	600 mg
	10 to 20 kg	300 mg
	5 to 10 kg	150 mg
	Under 5 kg	75 mg

SIDE EFFECTS

Procaine penicillin G can cause the same type of allergic reactions as other types of penicillin.



These include skin rash, fever, joint pain, and generalized swelling.

**WARNING**

Do not use procaine penicillin G in newborns or when the patient has a history of allergy to penicillin. Use with caution in patients who have other allergies.

You must keep epinephrine and a small syringe and needle on hand at all times at the health center. Do not administer antibiotics unless you have these supplies ready to use. If the patient suddenly develops the symptoms and signs of anaphylactic shock, carry out the following procedures.

- a. Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.
- b. Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages.
 

Adults and children	
40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc
- c. Record the patient's pulse, respiratory rate, and blood pressure every five minutes.
- d. If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.
- e. If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.
- f. If the patient has swelling and itching of the skin, give him 10 mg of chlorpheniramine IM. Give children 0.5 mg per kg of estimated body weight, up to a maximum dosage of 10 mg.
- g. If signs of shock continue for more than thirty minutes, transfer the patient to a hospital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

Treat less severe reactions with an antiallergy drug. See the Diagnostic and Patient Care

**Guide for Skin Reactions to Drugs.**

Never give procaine penicillin G intravenously.

**STORAGE**

Store the drug in the refrigerator at 2° to 8° C. Shake the drug before giving it to the patient.

**PATIENT INSTRUCTIONS**

1. This drug sometimes causes severe reactions. You may develop an itchy skin rash, general swelling of your body, pain in your joints, and fever.
2. The drug will help to control the infection in your body. However, you will need one to two shots a day for the next \_\_\_\_ days in order for the drug to help you.

**CHLORAMPHENICOL  
(Chloromycetin)**

**FORMS**

Capsules, 250 mg

Oral suspension, 150 mg/5 ml

**USES**

Chloramphenicol is effective in treatment of typhoid fever or typhus, or of children with meningitis. It is also effective in the treatment of septic arthritis or croup. Do not use chloramphenicol as a general antibiotic, because serious reactions, including death, can occur.

**DOSAGES**

Give the medication every six hours for the length of time indicated by the Diagnostic and Patient Care Guide for the specific condition you are treating.

Adults and children	
40 kg and over	500 mg
Children	
20 to 40 kg	250 mg
10 to 20 kg	150 mg
5 to 10 kg	75 mg

In typhoid fever, continue the drug for at least twelve days, or for eight to ten days after the patient has ceased to have a fever. Double the above dosage for the first two to three days if the patient is extremely ill.

**SIDE EFFECTS**

The most dangerous side effect of this drug is severe anemia. The body stops making red



blood cells. However, predicting which patients will suffer this side effect is not possible. The drug may also cause some nausea, vomiting, and diarrhea.

WARNING

Do not use this drug in infants under two months old, in pregnant women who are near to term, or in women who are nursing. The drug is toxic in young infants.

STORAGE

Store in an airtight container and protect from light.

PATIENT INSTRUCTIONS

- 1. Take this drug every six hours. This means that you will take the drug in the early morning, at noon, in the early evening, and late at night.
- 2. This drug may cause some nausea, vomiting, and diarrhea. However, you must continue to take the drug.
- 3. Rarely, this drug causes the body to stop making blood. However, predicting who will develop this serious problem is not possible. Your illness requires the use of this drug in spite of the risk of this reaction.
- 4. Keep this drug out of reach of children. Store it where it will be protected from light.

ERYTHROMYCIN

FORMS

Capsules, 250 mg  
Dry mixture for oral suspension, 200 mg/5 ml

USES

Erythromycin is a useful antibiotic in patients who are allergic to penicillin. It is effective in treating the same types of infections as penicillin.

DOSAGES

Give this drug every six hours for the length of time indicated by the Diagnostic and Patient Care Guide for the specific condition you are treating.

Adults and children	
40 kg and over	500 mg
Children	
20 to 40 kg	250 mg
10 to 20 kg	200 mg
5 to 10 kg	100 mg
Under 5 kg	50 mg

SIDE EFFECTS

Erythromycin sometimes causes nausea, vomiting, and diarrhea. It may also cause allergic reactions including skin rash. Tell the patient to continue taking the medication in spite of these side effects. Rarely, the drug causes more serious side effects that require stopping its use.

WARNING

None

STORAGE

Store in an airtight container at room temperature.

PATIENT INSTRUCTIONS

- 1. Take this drug at least thirty to sixty minutes before you eat, when your stomach is empty. Drink a glass of water with the drug. Take the fourth dose at bedtime with a glass of water.
- 2. Continue to take the drug for ten days, even if you begin to feel better after a few days. Completing the full treatment is very important.
- 3. Do not stop taking the medication because of other side effects.
- 4. For the oral suspension, shake the bottle each time before taking the drug. Keep it in a cool place. Throw away the unused portion after ten days.
- 5. Keep the drug out of reach of children.

TETRACYCLINE HYDROCHLORIDE

FORM

Capsules, 125 mg and 250 mg

USES

Tetracycline is effective in certain types of infections for which penicillin is not effective. These include urinary tract infections, prostatitis, chronic bronchitis, typhus, bacterial gastroenteritis, and trachoma.

If erythromycin is not available, use tetracycline in patients who are allergic to penicillin, although tetracycline may not be effective in every case.

DOSAGES

In older children and adults, give the drug every six hours for the length of time indicated by the Diagnostic and Patient Care Guide for the specific condition you are treating.



	MILD TO MODERATE INFECTION	SEVERE INFECTION
Adults and children 40 kg and over	250 mg	500 mg
Children 20 to 40 kg	125 mg	250 mg

Continue treatment for at least five days, or until the condition has improved. Do not give tetracycline for more than ten days except when the longer course is called for in the Diagnostic and Patient Care Guide for specific diseases, such as prostatitis.

### SIDE EFFECTS

Tetracycline may cause vomiting, nausea, and diarrhea. The patient may also develop thrush. Other toxic effects are rare.

### WARNING

Tetracycline is quickly absorbed into growing teeth and will damage the teeth and cause permanent discoloration. For this reason do not use tetracycline in children under eight years of age. Do not use it in pregnant or nursing women, unless you are treating life-threatening illness.

### STORAGE

Store in an airtight container. Protect from light.

### PATIENT INSTRUCTIONS

1. Take this drug every six hours. Drink a full glass of water with it to prevent an upset stomach. However, take the drug at least one hour before meals, because food will interfere with the drug. Milk and milk products also interfere with the drug.
2. Do not take iron pills, laxatives, antacids, or sodium bicarbonate while you are taking tetracycline.
3. Tetracycline may cause some nausea, vomiting, or diarrhea. However, continue to take the drug in spite of these reactions.
4. Keep the drug out of reach of children. Protect it from light.

## SULFADIAZINE

### FORM

Tablets, 500 mg

### USES

Sulfadiazine is an oral sulfonamide. Sulfadiazine is effective in the treatment of trachoma and lower urinary tract infections, and in the long-term prevention of rheumatic fever.

### DOSAGES

Give a large initial dose, and then a smaller dose every six hours for two weeks.

	FOLLOW-UP	
	INITIAL DOSE	DOSE
Adults and children 40 kg and over	3 g	1 g
Children 30 to 40 kg	2 g	1 g
20 to 30 kg	1.5 g	750 mg
10 to 20 kg	1 g	500 mg
Under 10 kg	500 mg	250 mg

### SIDE EFFECTS

Sulfadiazine can cause nausea, vomiting, loss of appetite, fever, and drowsiness.

### WARNING

Do not give sulfadiazine to patients who are jaundiced, to pregnant or breast-feeding women, or to newborns.

### STORAGE

Store in airtight containers and protect from light.

### PATIENT INSTRUCTIONS

1. This drug must build up in your blood. Take a large dose at first and then a smaller dose every six hours for two weeks.
2. Do not stop taking the drug when you start feeling better or improving. You must take it for a full two weeks. Otherwise, the germs will remain in your body.
3. This drug leaves your body in urine. It can block up the kidneys unless you drink an extra amount of water daily. Each day while you are taking the drug, drink at least six more glasses of water than you usually drink.
4. The drug can cause some side effects, includ-



ing nausea, vomiting, loss of appetite, fever, and drowsiness. Continue to take the drug even if you develop these symptoms. If other problems develop, come back to the health center right away.

- 5. Keep this drug out of reach of children. Protect it from light.

SULFADIMIDINE

(Sulfamethazine,  
Sulfamezathine)

FORMS

Tablets, 500 mg  
Mixture, 500 mg/5 ml

USES

Sulfadimidine is an oral sulfonamide. Sulfadimidine is effective in the treatment of trachoma and lower urinary tract infections, and in the long-term prevention of rheumatic fever.

DOSAGES

Give a large initial dose, and then a smaller dose every six hours for two weeks.

	FOLLOW-UP	
	INITIAL DOSE	DOSE
Adults and children 40 kg and over	3 g	1 g
Children		
30 to 40 kg	2 g	1 g
20 to 30 kg	1.5 g	750 mg
10 to 20 kg	1 g	500 mg
Under 10 kg	500 mg	250 mg

SIDE EFFECTS

Sulfadimidine can cause nausea, vomiting, loss of appetite, fever, and drowsiness.

WARNING

Do not give sulfadimidine to patients who are jaundiced, to pregnant or breast-feeding women, or to newborns.

STORAGE

Store in airtight containers and protect from light.

PATIENT INSTRUCTIONS

1. This drug must build up in your blood. Take a large dose at first and then a smaller dose every six hours for two weeks.
2. Do not stop taking the drug when you start feeling better or improving. You must take it for a full two weeks. Otherwise, the germs will remain in your body.
3. The drug leaves your body in urine. It can block up the kidneys unless you drink an extra amount of water daily. Each day while you are taking the drug, drink at least six more glasses of water than you usually drink.
4. The drug can cause some side effects, including nausea, vomiting, loss of appetite, fever, and drowsiness. Continue to take the drug even if you develop these symptoms. If other problems develop, come back to the health center right away.
5. Keep this drug out of reach of children. Protect it from light.

DAPSONE (DDS)

FORM

Tablets, 25 mg and 100 mg

USE

Dapsone is used in the treatment of leprosy.

DOSAGES

Begin with a small dose and increase the dose at monthly intervals over a three to four month period.

	FIRST FOUR WEEKS	SECOND FOUR WEEKS	THIRD FOUR WEEKS
Adults and children 30 kg and over	25 mg twice weekly	50 mg twice weekly	100 mg twice weekly
Children			
12 to 30 kg	25 mg once weekly	25 mg twice weekly	50 mg twice weekly
Under 12 kg	10 mg once weekly	10 mg twice weekly	25 mg twice weekly



**SIDE EFFECTS**

Dapsone may cause an allergic skin rash. Infrequently, it may cause nausea, vomiting, loss of appetite, headache, difficulty sleeping, and rapid heart rate. If the patient develops a skin rash, refer him to a hospital.

**WARNING**

When a patient with leprosy develops symptoms of a reaction, advise him to stop taking dapsone. Refer him to a hospital for further evaluation.

**STORAGE**

Store the drug at room temperature. Protect it from light.

**PATIENT INSTRUCTIONS**

1. Choose two times each week when you will be most certain to remember to take your leprosy drug. You must take this drug for many years without forgetting.
2. Treatment begins with a very small dose and increases each month until you are taking the full amount after four months.
3. Keep your drug in a place where children cannot reach it. The drug is poisonous if a lot is taken at one time. Protect it from light.
4. When you return to the health center, always bring your drug with you. Then we can count the pills and make sure that you are taking the correct amount.
5. The drug may cause some loss of appetite, nausea, vomiting, and headache. You may develop a skin rash. If a skin rash develops, come back to the health center immediately.

**STREPTOMYCIN SULFATE****FORM**

Solution for injection, 500 mg/ml

**USES**

Streptomycin is effective in the treatment of tuberculosis, when used together with one or two additional drugs. Most frequently, isoniazid is one of the two drugs. Para-aminosalicylic acid or thiacetazone may be the other drug.

Streptomycin is also effective in the treatment of septic abortion and infections within the abdomen.

**DOSAGES**

In pulmonary tuberculosis, give streptomycin IM daily for the first eight to twelve weeks and then twice a week thereafter.

**Adults**

40 years and

over

750 mg

Under 40 years

1 g

**Children**

20 mg per kg body

weight up to a maximum

of 1 g

In treatment of severe bacterial infections, other than tuberculosis, give an injection every twelve hours for five to ten days.

Adults 500 mg per dose

Children 10 to 20 mg per kg body weight per dose

**SIDE EFFECTS**

Pain and irritation at the site of the injection are common. Rotate the site of injection for each shot.

**WARNING**

Do not give streptomycin to pregnant women. The drug will cause permanent damage to the ears of the fetus resulting in deafness in the newborn.

Ringing in the ears and difficulty in maintaining body balance are symptoms of irritation of the nerves of the ear. Stop giving the drug immediately if these symptoms occur. Streptomycin can cause permanent damage to the ears.

**STORAGE**

Store between 15° and 30°C. Protect from freezing and from light.

**PATIENT INSTRUCTIONS**

1. Streptomycin may cause pain where it is injected. For this reason, you will receive the injection in a different muscle each time.
2. The drug can cause ringing in your ears. It can also make it difficult for you to keep your balance. If you notice these effects, report them immediately. You must stop receiving the injections.



## ISONIAZID (INH, Isonicotinic Acid Hydrazide)

### FORM

Tablets, 50 mg and 100 mg

### USE

Isoniazid is very useful in treatment of tuberculosis.

### DOSAGES

Most commonly, the patient should take isoniazid once a day.

Adults 300 mg

Children 5 mg per kg body weight up to a maximum of 300 mg

Usually the patient must take the drug for at least twelve to eighteen months, or longer.

### SIDE EFFECTS

Occasionally, isoniazid causes nausea, vomiting, and abdominal discomfort. In older or poorly nourished people, isoniazid may cause some nerve damage. The patient will have burning, tingling, or numbness in his hands and feet. Warn him of this. If these symptoms develop, refer the patient to a hospital.

### WARNING

If you suspect that the patient has liver or kidney disease, refer him to a hospital before you begin treating him with isoniazid. If the patient develops any numbness or tingling in his hands and feet, refer him to a hospital.

### STORAGE

Store in airtight containers. Protect from light.

### PATIENT INSTRUCTIONS

1. For your body to destroy the tuberculosis germs, you must take this drug for the full time required.
2. Take this drug at the same time each day. This will help you to remember to take the drug.
3. Sometimes this drug may cause you to feel some numbness and tingling in your hands and feet. If this happens, come back to the health center right away.
4. Isoniazid may cause some nausea and vomiting. However, you must continue to take the drug in spite of these reactions.
5. Keep the drug out of reach of children. Protect the drug from light and moisture.

## PARA-AMINOSALICYLIC ACID (Sodium Aminosalicylate, Sodium Para-Aminosalicylate, Sodium PAS)

### FORM

Tablets, 500 mg

### USE

In the treatment of tuberculosis, always give para-aminosalicylic acid with one or two other drugs in order to prolong its effectiveness.

### DOSAGES

Give this drug in two doses daily, twelve hours apart. Tell the patient to take the drug during or shortly after a meal, or with some antacid. This will reduce its toxic effects.

Adults 6 g every twelve hours

Children 100 to 150 mg per kg body weight every twelve hours up to a maximum of 6 g

Usually, the patient must continue treatment for at least twelve to eighteen months.

### SIDE EFFECTS

PAS often causes nausea, vomiting, and diarrhea. Advise the patient to take the drug with food or an antacid.

### WARNING

PAS also can cause allergic symptoms such as fever and skin rash. If these symptoms develop, you must stop giving the drug and substitute another drug. Patients who are allergic to aspirin are likely to be allergic to PAS as well.

### STORAGE

Store in an airtight container between 15° and 30° C.

### PATIENT INSTRUCTIONS

1. You must take this drug twice a day. It often causes upset stomach and diarrhea. So take the drug with a meal or shortly after the meal. You may also take it with some antacid.
2. If other problems develop while you are taking this drug, come back to the health center right away.
3. Keep this drug out of reach of children. Keep it in a cool place and protect it from moisture.
4. Do not take aspirin while you are taking this drug. Aspirin will reduce the effect of this drug.



## THIACETAZONE

### FORM

Tablets, 50 mg, 75 mg, and 100 mg

### USE

Thiacetazone, used together with one or two additional drugs, is effective in the treatment of tuberculosis.

### DOSAGES

Give thiacetazone once daily.

Adults            150 mg

Children        2 mg per kg body weight

The patient must continue to take this drug for twelve to eighteen months. If side effects develop, reduce the dosage. Then increase it again slowly over a two week period.

### SIDE EFFECTS

Frequent side effects include loss of appetite, nausea, abdominal pain, headache, and dizziness. These effects often decrease after several weeks.

### WARNING

Do not use thiacetazone in patients who have liver disease or jaundice.

More serious effects occur much less frequently. They include jaundice, liver problems, skin rashes, and severe anemia. The patient must stop taking the drug if these problems occur.

### STORAGE

Store in airtight containers. Protect from light.

### PATIENT INSTRUCTIONS

1. To help you remember to take this drug every day, take it at the same time each day. You must continue to take the drug for many months, even when you start to feel better.
2. Thiacetazone can cause you to lose your appetite, or to vomit or have stomach aches. It sometimes causes other symptoms, such as headache and dizziness. Often, these effects stop after several weeks. If you develop any of these problems, come back to the health center right away.
3. Keep this drug out of reach of children. Protect it from light and moisture.



# ANTI-PROTOZOANS

## METRONIDAZOLE (Flagyl)

### FORM

Tablets, 250 mg

### USES

Metronidazole is effective in the treatment of amebiasis, giardiasis, and trichomonal vaginitis.

### DOSAGES

For treatment of amebiasis, instruct the patient to take 250 mg tablets of metronidazole three times a day for seven days.

Adults	500 mg (2 tablets) three times a day
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Children	
15 kg or more	250 mg (1 tablet) three times a day
10 kg to 15 kg	187.5 mg (3/4 tablet) three times a day
6 kg to 10 kg	125 mg (1/2 tablet) three times a day
Under 6 kg	62.5 mg (1/4 tablet) three times a day

For treatment of giardiasis, instruct the patient to take metronidazole for seven days.

Adults and children	
30 kg and over	250 mg three times a day

Children	
15 kg to 30 kg	125 mg three times a day
Under 15 kg	125 mg twice a day

For treatment of trichomonal vaginitis, give both the female and her male partner the same dosage.

Adults	250 mg three times a day for seven days. Alternative- ly, give 2 g in one dose
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### SIDE EFFECTS

Occasionally, metronidazole causes nausea, vomiting, abdominal pain, unpleasant taste in the mouth, headache, and skin rashes.

### WARNING

Do not give metronidazole to pregnant women during the first three months of pregnancy.

### STORAGE

Store at room temperature.

### PATIENT INSTRUCTIONS

1. Take this drug three times a day for one week. Keep taking the drug even when you think you are well. Otherwise, the problem will come back.
2. Do not drink any alcohol while you are using this drug. The alcohol, with this drug, may make you sick to your stomach, or cause headaches, pain in your stomach, and a hot feeling in your face.
3. Keep this drug out of reach of children.

## MEPACRINE HYDROCHLORIDE (Quinacrine, Atabrine)

### FORM

Tablets, 100 mg, scored

### USE

Mepacrine hydrochloride is effective in the treatment of giardiasis.

### DOSAGES

In the treatment of giardiasis, tell the patient to take the drug for seven days.

Adults and children	
30 kg and over	100 mg three times a day for seven days

Children	
15 to 30 kg	50 mg three times a day for seven days
Under 15 kg	50 mg twice a day for seven days

### SIDE EFFECTS

Mepacrine occasionally causes dizziness, headaches, and gastrointestinal symptoms. Rarely, it causes the skin to become yellow.

### WARNING

None

### STORAGE

Store in an airtight container and protect from light.



PATIENT INSTRUCTIONS

1. Take this drug in the morning, at noon, and in the evening. Continue to take it for one week. Do not stop taking the drug even if you begin to feel better.
2. This drug sometimes causes dizziness, headaches, and upset stomach. Continue to take the drug in spite of these reactions.
3. Keep the drug out of reach of children. Protect it from light and moisture.

QUININE DIHYDROCHLORIDE

FORM

Sterile solution for infusion

USE

Quinine dihydrochloride is rapidly effective when given intravenously to patients with malignant malaria.

DOSAGES

Adults	600 mg, diluted in 500 ml of normal saline and given over thirty to sixty minutes
Children	10 mg per kg body weight, diluted in 300 ml of normal saline and given over thirty to sixty minutes

You may repeat the dosage every twelve hours until the patient's condition improves.

SIDE EFFECTS

Quinine will damage the blood vessels and tissues. Be very careful to make certain that the needle remains in the blood vessel.

Repeated doses of quinine may cause ringing in the ears, headache, nausea, abdominal pain, skin rash, and vision problems. Some patients may develop these symptoms with smaller doses.

WARNING

Do not give quinine to patients who have reacted to the drug previously. Given intravenously, quinine may cause a rapid drop in blood pressure. It will also decrease respirations. Watch your patient carefully. Slow the rate of infusion if these signs occur.

STORAGE

Protect from light.

PATIENT INSTRUCTIONS

Quinine may cause ringing in the ears, headache, nausea, abdominal pain, problems with

vision, and skin rashes. These reactions are more likely to occur if you have received the drug before.

CHLOROQUINE PHOSPHATE

FORMS

Tablets, 250 mg

Sterile solution in water for injection, 65 mg/ml

USE

Chloroquine phosphate is effective in the treatment and suppression of malaria.

DOSAGES

For treatment of an acute attack of malaria, give a large initial dose of chloroquine. Give a second dose in six hours. Then give a single dose daily for the next four days.

	INITIAL DOSE	SIX HOURS LATER	DAILY FOR NEXT FOUR DAYS
Adults and children 40 kg and over	1 g	500 mg	500 mg
Children 20 to 40 kg	500 mg	250 mg	250 mg
10 to 20 kg	250 mg	125 mg	125 mg

When the patient is vomiting and unable to take chloroquine by mouth, give the drug to adults by intramuscular injection. Give the drug to children subcutaneously.

Adults	5 ml Repeat every six hours for twenty-four hours, if necessary.
Children	0.25 ml per kg body weight subcutaneously. Repeat one time only if necessary.

Also give chloroquine for prevention of an attack of malaria, and to suppress attacks when the patient has had malaria.

Adults and children 40 kg and over	500 mg weekly
Children 20 to 40 kg	250 mg weekly
10 to 20 kg	125 mg weekly



**SIDE EFFECTS**

Occasionally, chloroquine causes nausea, vomiting, abdominal cramps, headache, and skin rashes.

**WARNING**

Do not give chloroquine to pregnant women unless the risk of malaria is great. This drug can damage the eyes and ears of the fetus.

Overdosage in children or with intravenous injection may cause headache, drowsiness, decreased respiratory and heart rates, and shock, followed by death.

**STORAGE**

Protect from light.

**PATIENT INSTRUCTIONS**

1. Chloroquine tastes very bitter. Take the drug with sugar or honey or other sweet food to hide the taste.
2. Chloroquine is a dangerous drug if a large amount is taken at one time. Keep the drug out of reach of children.
3. Chloroquine can cause nausea, vomiting, stomach cramps, headache, and rashes. However, keep taking the drug even if these reactions occur.



# ANTI-FUNGAL

## GRISEOFULVIN

### FORM

Tablets, 125 mg and 250 mg

### USE

Griseofulvin is for use in patients with fungus infections that cannot be cured with antifungal ointments.

### DOSAGES

You must treat the patient with griseofulvin for at least three weeks.

Adults                      500 mg once a day

#### Children

6 to 12 years  
of age                      250 mg once a day

Under 6 years  
of age                      125 mg once a day

### SIDE EFFECTS

Occasionally, griseofulvin causes skin rash, headache, dry mouth, and gastrointestinal

symptoms. These are rarely severe enough to require the patient to stop taking the drug.

### WARNING

Do not give this drug to patients with liver disease.

### STORAGE

Store in airtight containers.

### PATIENT INSTRUCTIONS

1. This infection will take a long time to cure. You must take this drug once a day for a month or longer. Do not stop taking the drug before then, even if the rash improves.
2. The drug may cause skin rash, headache, and upset stomach. However, you must continue to take the drug in spite of these reactions.
3. Keep the drug out of reach of children. Protect it from moisture.



# GASTROINTESTINAL DRUGS

## Antacids

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### ALUMINA AND MAGNESIA

#### FORMS

Oral suspension

Tablets

#### USES

Antacids are usually mixtures of aluminum and magnesium hydroxides. These substances help to destroy the effect of stomach acids. In conditions such as peptic ulcer and heartburn, high acid levels in the stomach damage the lining of the stomach and cause pain and other problems. Antacids reduce the damage by neutralizing the acid.

#### DOSAGES

Levels of stomach acid are highest about one hour after meals. The stomach also produces acid during the night. Whenever the stomach is empty, the gastric acid will cause irritation. Tell the patient to take at least 15 to 30 ml of antacid one hour after meals. Tell him to take antacids at bedtime, and up to three to four times during the day when he feels pain or discomfort. He may have to take a larger dose of antacid to obtain relief, because the amount of acid that each person produces will vary. The oral suspension works more rapidly. However, the patient can suck on the tablets to help dissolve them. This will prolong the effect of the antacid.

#### SIDE EFFECTS

Sometimes an antacid will cause diarrhea. Sometimes it will cause constipation.

#### WARNING

Antacids interfere with the absorption of some other drugs, when taken at the same time. Check to make sure that the patient is not taking one of the drugs that the antacid will affect. These drugs include oral penicillin V, tetracycline, ferrous sulfate, isoniazid, sulfadiazine, and sulfadimidine.

#### STORAGE

No special requirements

#### PATIENT INSTRUCTIONS

1. This drug helps to keep your stomach acids from irritating the lining of your stomach and causing pain and heartburn.
2. Take the drug about one hour after meals, and from one to two hours before meals. Take it also at bedtime. These are the times when you are most likely to feel burning from the stomach acid. Take three to four teaspoons each time. However, if necessary, you may use more of the drug to relieve the pain.
3. This drug may cause either diarrhea or constipation. If you become constipated, take some mineral oil to soften your stool. Or reduce the amount of the drug you are taking.
4. Keep the drug out of reach of children.

## Emetic Agent

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### IPECAC SYRUP

#### FORM

Syrup

#### USE

Ipecac syrup is used to cause vomiting, as a way of emptying the stomach in cases of poisoning.

#### DOSAGES

Give adults 20 to 30 ml, followed by at least two glasses of water. Repeat in twenty minutes if the patient has not vomited.

Give children 15 ml, followed by a glass of water. Repeat in twenty minutes if the patient has not vomited.

#### SIDE EFFECTS

None

#### WARNING

Do not use ipecac syrup in patients who are unconscious or in shock. Do not confuse ipecac syrup with ipecac fluid extract or tincture of ipecac. The latter are more concentrated and dangerous to use in large doses.

**STORAGE**

Store in a cool place, in airtight containers. Protect from light.

**PATIENT INSTRUCTIONS**

1. This drug should make you vomit within twenty minutes. If it does not, you will receive another dose. You must empty your stomach as quickly as possible.
2. Keep the drug out of reach of children.

**Anti-Hemorrhoidal Agents****LIGNOCAINE AND HYDROCORTISONE RECTAL SUPPOSITORY****FORM**

Suppository for rectal use

**USES**

Lignocaine and hydrocortisone suppositories can relieve pain in patients with hemorrhoids or anal fissures.

**DOSAGES**

Tell the patient to insert one suppository three or four times a day, after a bowel movement.

**SIDE EFFECTS**

None

**WARNING**

None

**STORAGE**

Store at room temperature. Protect from heat and sun.

**PATIENT INSTRUCTIONS**

1. Remove the wrapper from the suppository. Moisten the suppository. Use your little finger to push the suppository up into your rectum.
2. Use the suppository after a bowel movement. Use up to four suppositories a day while you are having severe pain. Do not continue to use them when the pain subsides.
3. Keep the drug out of reach of children.

**MINERAL OIL (Liquid Petrolatum)****FORM**

Liquid

**USES**

Mineral oil, taken by mouth, will soften the stool in patients with constipation or painful rectal conditions.

**DOSAGES**

Between 10 and 30 ml of mineral oil, one time daily, is usually sufficient to soften the stools.

**SIDE EFFECTS**

Mineral oil can interfere with the absorption of certain foods. For this reason, you should encourage patients to stop using mineral oil as soon as possible.

**WARNING**

None

**STORAGE**

Protect from light.

**PATIENT INSTRUCTIONS**

1. Mineral oil will help to soften your stool so that you can move your bowels more frequently and so that the bowel movement will cause less discomfort.
2. Drink more fluids each day to help soften your stool. Always move your bowels when you feel the urge to do so. As soon as your stools become soft and the pain in your rectum decreases, begin to reduce the amount of mineral oil that you are taking, so that you can completely stop taking it.
3. Keep mineral oil out of reach of children.

**Laxative****MAGNESIUM SULFATE CRYSTALS****FORM**

Crystals

**USE**

Magnesium sulfate is used to clear the bowels



## FORMULARY

of the worms after the patient has taken worm drug. It acts within one to two hours. Magnesium sulfate is not absorbed from the intestines. It draws water into the intestines. This rapidly leads to a large, liquid bowel movement.

### DOSAGES

Adults            15 g dissolved in 240 ml of water  
Children        5 to 10 g dissolved in 120 ml of water

### SIDE EFFECTS

None

### WARNING

In children with a heavy load of intestinal worms, the intestines may be so severely damaged that they allow magnesium sulfate to enter the blood stream and poison the child. Signs and symptoms of this poisoning include twitching of the face, thirst, a drop in blood pressure, and decreased respiration. If you suspect a heavy load of intestinal worms, reduce the dosage in children.

### STORAGE

Store in an airtight container in a cool place.

### PATIENT INSTRUCTIONS

1. Mix the crystals in a glass of water and drink the mixture. It will taste bitter. You will have a large, watery bowel movement within one to two hours.
2. Keep the drug out of reach of children.

## **Replacement Solution**

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### ORAL REHYDRATION POWDER

#### FORM

Powder in packets, containing  
3.5 g sodium chloride

2.5 g sodium bicarbonate  
1.5 g potassium chloride  
20.5 g glucose

Mix one package of powder with one liter of freshly boiled water.

#### USES

Give oral rehydration fluid to patients who are having diarrhea and who may become dehydrated, or who have become dehydrated.

#### DOSAGES

Give the fluid by spoon and cup to small infants. Give the child as much fluid as he will take. The least amount of rehydration fluid that a child should drink over the first two hours equals his weight in kg times 20 ml. Continue to give the child at least one cup of fluid for every stool that he has.

If no packets of oral rehydration powder are available, boil one liter of water. While the water is cooling, add one two-finger pinch of salt and one two-finger pinch of baking soda plus two fistfuls of sugar. When the water has cooled, use the fluid in the same way as you would use oral rehydration fluid.

#### SIDE EFFECTS

None

#### WARNING

None

#### STORAGE

Protect from moisture.

#### PATIENT INSTRUCTIONS

None

# RESPIRATORY TRACT DRUGS

## Bronchodilators

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### AMINOPHYLLINE (Theophylline Ethylenediamine Compound)

#### FORM

Tablets, 100 mg

#### USES

Aminophylline helps to relieve wheezing in patients with asthma. Aminophylline reduces muscle spasms in the bronchioles of the lungs.

#### DOSAGES

Give aminophylline every six hours, or four times a day to prevent asthma attacks and to help control mild attacks of asthma.

Adults and children	
40 kg and over	200 mg
Children	
20 to 40 kg	100 mg
10 to 20 kg	50 mg

#### SIDE EFFECTS

Aminophylline may cause stomach irritation, nausea, vomiting, nervousness, and headaches.

#### WARNING

Use aminophylline cautiously in patients with heart disease.

#### STORAGE

Store in airtight containers and protect from light.

#### PATIENT INSTRUCTIONS

1. This drug will help to prevent you from getting wheezing attacks. It will also help you to get over an attack that has started.
2. Always take the drug with a glass of water. Drink lots of fluids.
3. This drug can cause stomach irritation, nausea, and vomiting. You may wish to take the drug with a little food. The drug can also cause headaches and a feeling of nervousness.
4. Keep the drug where children cannot reach it.

### EPINEPHRINE (Adrenaline)

#### FORM

Injection, 1 mg/ml, 1:1000 solution

#### USES

Epinephrine is very effective in the treatment of acute attacks of asthma. It is also life-saving in patients with severe allergic reactions and anaphylactic shock.

#### DOSAGES

Inject epinephrine subcutaneously.

Adults and children 40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc

Repeat this dose every fifteen to thirty minutes for three to four times, if necessary, in order to control wheezing or to reverse allergic reactions.

#### SIDE EFFECTS

Epinephrine causes restlessness, anxiety, headache, rapid heart rate, and pounding of the heart.

#### WARNING

Measure and record the patient's pulse rate before each dose. Do not repeat the dose if the pulse rate is over 160 beats per minute.

#### STORAGE

Protect from light. Discard if solution is brown or discolored.

#### PATIENT INSTRUCTIONS

This drug may cause you to become restless and anxious. You may feel your heart pounding rapidly. You may develop a headache.

## Cough Expectorant

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### GLYCERYL GUAIACOLATE (Guaiphenesin)

#### FORMS

Syrup, 100 mg/5 ml  
Capsules, 200 mg



## FORMULARY

### USE

Glyceryl guaiaacolate may be useful in reducing the discomfort of cough.

### DOSAGES

Adults 100 to 200 mg every  
three to four hours for cough

Children 50 to 100 mg every  
three to four hours for cough

### SIDE EFFECTS

None

### WARNING

None

### STORAGE

Store in airtight containers.

### PATIENT INSTRUCTIONS

1. Drink a lot of water or other liquid with this drug. The water will help to make the drug more effective in soothing your cough.
2. Keep this drug out of the reach of children.

# REPLACEMENT SOLUTIONS

## DEXTROSE, 5% IN WATER

### FORM

Solution for IV infusion, 1 liter

### USE

Give this solution to patients who are unable to take sufficient fluid by mouth to meet their daily water requirement. The dextrose provides some energy for the body. However, this solution provides no minerals.

### DOSAGES

Use the first table below to guide you in estimating how much intravenous fluid the patient needs in twenty-four hours. If the patient needs normal saline, Ringer's lactate, or 5% dextrose in 1/2 normal saline, give the recommended amount. Subtract this amount from the total ml of fluid. Give the remaining ml of fluid as 5% dextrose in water.

### SIDE EFFECTS

None

### WARNING

Too large an infusion of intravenous solution can lead to heart failure. Always watch the patient carefully for swelling, especially around the eyes.

### STORAGE

Store in airtight containers below 25°C.

### PATIENT INSTRUCTIONS

When these fluids are given directly into a blood vessel, they will help to replace the fluids your body has lost.

## DEXTROSE, 5% IN 1/2 NORMAL SALINE

### FORM

Solution for IV infusion, 1 liter

### USES

This solution provides half as much sodium as the normal saline solution. It is useful to maintain a patient's water balance when he has not lost blood or large volumes of water from diarrhea, vomiting, or burns.

### DOSAGES

Use the second table below to guide you in estimating how much intravenous fluid the patient needs in twenty-four hours. Give the recommended amount of 5% dextrose in 1/2 normal saline. Subtract this amount from the total ml of fluid. Give the remaining ml of fluid as 5% dextrose in water.

BODY WEIGHT	TOTAL ML OF FLUID	ML OF NORMAL SALINE OR RINGER'S LACTATE	ML OF 5% DEXTROSE IN 1/2 NORMAL SALINE
60 kg	2500 ml	500 ml	1000 ml
45 kg	1800 ml	350 ml	700 ml
30 kg	1500 ml	250 ml	500 ml
15 kg	1000 ml	175 ml	350 ml
10 kg	800 ml	140 ml	280 ml
5 kg	600 ml	120 ml	240 ml
2.5 kg	400 ml	100 ml	200 ml

BODY WEIGHT	TOTAL ML OF FLUID	ML OF 5% DEXTROSE IN 1/2 NORMAL SALINE
60 kg	2500 ml	1000 ml
45 kg	1800 ml	700 ml
30 kg	1500 ml	500 ml
15 kg	1000 ml	350 ml
10 kg	800 ml	280 ml
5 kg	600 ml	240 ml
2.5 kg	400 ml	200 ml



SIDE EFFECTS

None

WARNING

Too large an infusion of intravenous solution can lead to heart failure. Always watch the patient carefully for swelling, especially around the eyes.

STORAGE

Store in airtight containers below 25° C.

PATIENT INSTRUCTIONS

When these fluids are given directly into a blood vessel, they will help to replace the fluids your body has lost.

**NORMAL SALINE (Sodium Chloride 0.9%, Isotonic Saline)**

FORM

Solution for IV infusion, 1 liter

USES

This solution contains approximately the same concentration of sodium as is found in the blood and in the fluids that are lost during diarrhea or vomiting. Use normal saline in emergencies to replace blood loss, and in fluid loss during diarrhea, when the patient cannot take sufficient fluids by mouth. A smaller amount of normal saline solution is required to replace the sodium that the body loses daily in the urine.

DOSAGES

Use the following table to guide you in estimating how much intravenous fluid the patient needs in twenty-four hours. Give the recommended amount of normal saline. Subtract this

amount from the total ml of fluid. Give the remaining ml of fluid as 5% dextrose in water.

SIDE EFFECTS

None

WARNING

Too large an infusion of intravenous solution can lead to heart failure. Always watch the patient carefully for swelling, especially around the eyes.

STORAGE

Store in airtight containers below 25° C.

PATIENT INSTRUCTIONS

When these fluids are given directly into a blood vessel, they will help to replace the fluids your body has lost.

**RINGER'S LACTATE**

FORM

Solution for IV infusion, 1 liter

USES

Ringer's lactate solution is the preferred replacement solution in patients who require intravenous fluids for treatment of severe dehydration. You may also use it as replacement fluid when the patient is in shock and when he has suffered burns.

DOSAGES

Use the following table to guide you in estimating how much intravenous fluid the patient needs in twenty-four hours. Give the recommended amount of Ringer's lactate. Subtract this amount from the total ml of fluid. Give the remaining ml of fluid as 5% dextrose in water.

BODY WEIGHT	TOTAL ML OF FLUID	ML OF NORMAL SALINE OR RINGER'S LACTATE
60 kg	2500 ml	500 ml
45 kg	1800 ml	350 ml
30 kg	1500 ml	250 ml
15 kg	1000 ml	175 ml
10 kg	800 ml	140 ml
5 kg	600 ml	120 ml
2.5 kg	400 ml	100 ml

**SIDE EFFECTS**

None

**WARNING**

Too large an infusion of intravenous solution can lead to heart failure. Always watch the patient carefully for swelling, especially around the eyes.

**STORAGE**

Store in airtight containers below 25° C.

**PATIENT INSTRUCTIONS**

When these fluids are given directly into a blood vessel, they will help to replace the fluids your body has lost.

**GLUCOSE, 50% SOLUTION****FORM**

Solution, 50 ml vials

**USE**

You may give glucose 50% solution intravenously to patients in whom you suspect low blood sugar is the cause of coma.

**DOSAGE**

Infuse 20 ml of this solution rapidly. If low blood sugar is responsible for the patient's symptoms, improvements should occur within five to ten minutes.

**SIDE EFFECTS**

None

**WARNING**

Be careful to infuse the solution directly into the blood vessel. If the solution leaks into the

surrounding tissue, it will cause irritation and pain.

**STORAGE**

Store in airtight containers in a cool place.

**PATIENT INSTRUCTIONS**

This solution has a lot of sugar in it. It will help you feel better if your blood does not have enough sugar in it right now.

**Other**

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**STERILE WATER FOR INJECTION****FORMS**

Vials, 2 ml and 10 ml

**USES**

Use sterile water for injection for preparation of medicines that must be given by injection.

**DOSAGE**

Use the quantity of sterile water specified for proper dilution of the drug you are preparing for injection.

**SIDE EFFECTS**

None

**WARNING**

Never inject sterile water directly, because it will cause the destruction of red blood cells.

**STORAGE**

Store at room temperature.

**PATIENT INSTRUCTIONS**

None



# VACCINES

## BCG VACCINE (Bacillus Calmette-Guerin)

### FORM

Multi-dose vial

### USES

BCG vaccine protects against tuberculosis. It provides active immunity against the natural disease.

### DOSAGES

You can give BCG vaccine to a child anytime from birth to age fourteen. Give 0.1 ml intradermally. Give newborns 0.05 ml. Always give BCG on the outer side of the right shoulder. In this way, others can check for a scar there and know that the patient has received BCG vaccine and that it was effective.

A pus filled blister should develop over the injection site. This blister is called a pustule. The pustule drains for many weeks. Do not cover the pustule.

Sometimes no pustule forms when you give a BCG immunization. The pustule does not drain. This means that the immunization has not been effective. The body is not making antibodies. Give the child another BCG injection.

Follow the national guidelines of your country for giving a second BCG vaccination to children entering school.

### SIDE EFFECTS

An ulcer may develop at the vaccination site. Swelling and tenderness of the lymph glands may occur under the arm.

### WARNING

Do not give BCG vaccine within one month of giving measles or polio vaccine. Do not give BCG vaccine to anyone with active tuberculosis or to anyone who is under treatment with steroid drugs.

### STORAGE

After you have reconstituted BCG vaccine with sterile water, use it within two hours. Discard what you have not used. Store freeze-dried BCG between 2° and 10° C. Protect from freez-

ing. These recommendations are not a substitute for the package insert included with each vaccine.

### PATIENT INSTRUCTIONS

1. This shot will help to protect you (your child) from tuberculosis.
2. A small red lump will develop at the place where the shot was given. The lump will develop within three to six weeks. The lump should form a blister with a crust on it. Swelling under the arm may also occur.
3. If no blister develops, then the shot has not worked. You must return to the health center for another injection.
4. The sore may last for several months. It will leave a scar that will last for many years.

## DPT VACCINE (Triple Vaccine; Diphtheria, Pertussis, and Tetanus Vaccine)

### FORMS

Suspension for injection, multi-dose vials

### USES

DPT vaccine combines the vaccines for diphtheria, whooping cough, and tetanus. D is for diphtheria. P is for pertussis, or whooping cough. T is for tetanus.

### DOSAGES

Give a series of four DPT injections to all children under six years of age. Give the first three DPT shots at least two months apart. For example, give the first shot at three months, the second at five months, and the third at seven months. Give the fourth shot approximately one year after the third shot.

Give 0.5 ml to 1.0 ml, depending on the instructions on the label. Give the injection in the muscle of the front upper outer thigh in infants or in the muscle of the back of the hip in children who can walk.

### SIDE EFFECTS

The injection site may become tender and swollen. DPT vaccine also causes irritability, fever, loss of appetite, and occasional vomiting.



**WARNING**

Do not give DPT vaccine to an infant who is ill with an acute infectious disease such as a viral upper respiratory infection.

After age five or six, a child is no longer at great risk of becoming ill with whooping cough. Whooping cough vaccine also tends to make older children and adults sick. Therefore, do not give DPT vaccine to children after age five or six.

**STORAGE**

Store between 2° and 10° C and protect from freezing. Protect from light. These recommendations are not a substitute for the package insert included with each vaccine.

**PATIENT INSTRUCTIONS**

1. This injection will help to protect your child from three very common illnesses. They are diphtheria, whooping cough, and tetanus.
2. Your child must have a total of four injections in order to be protected from these illnesses. Please return for the other injections as directed.
3. This injection will sometimes cause your child to develop a fever and become irritable. He may lose his appetite and vomit. However, these effects should not last more than a few hours. The injection site may become painful and swollen. However, the pain and swelling should go away in one to two days. If the pain and swelling have not gone away after two days, return to the health center.

**DT VACCINE (Adsorbed Diphtheria and Tetanus Vaccine)****FORM**

Solution for injection

**USES**

DT vaccine provides active immunization against diphtheria and tetanus in individuals who are allergic to the pertussis part of the DPT vaccine. It is also for use in individuals over the age of five years.

**DOSAGES**

Give a DT vaccination when a child enters primary school. Give 0.5 to 1.0 ml, intramuscularly or deep subcutaneously, depending upon the instructions of the manufacturer.

**SIDE EFFECTS**

Local pain and tenderness occur occasionally at the vaccination site.

**WARNING**

None

**STORAGE**

Store between 2° and 10° C. Avoid freezing. Protect from light. These recommendations are not a substitute for the package insert included with each vaccine.

**PATIENT INSTRUCTIONS**

1. This injection will help to protect you (your child) from both diphtheria and tetanus.
2. You may have some pain and swelling at the place where the vaccine was injected. However, the pain and swelling should not last for more than one to two days. If the pain and swelling last more than two days, return to the health center.

**MEASLES VACCINE****FORM**

Dried vaccine with diluent

**USE**

Measles vaccine provides active immunization against measles.

**DOSAGES**

Give 0.5 ml IM or SC when the child is nine to twelve months old. If given before nine months, repeat the immunization after the child is one year of age.

**SIDE EFFECTS**

Skin rash occurs frequently. Fever, beginning five to ten days after the immunization and lasting one to two days, is frequent. Bronchitis and red eyes and throat occur occasionally.

**WARNING**

Do not give measles vaccine to persons with active tuberculosis. Do not give it to pregnant women. Do not give it to children who are suffering from acute respiratory infections.

Chemicals and antiseptics easily destroy measles vaccine. Take great care to keep the vaccine out of contact with these substances during sterilization of syringes and needles, and during cleansing of the skin before immunization.



#### STORAGE

When frozen or stored below 10° C, the dried vaccine should remain active for up to one year. Use the vaccine immediately after you have added the diluent. These recommendations are not a substitute for the package insert included with each vaccine.

#### PATIENT INSTRUCTIONS

1. This injection will protect your child from becoming ill with measles.
2. Your child may develop some of the symptoms of measles in five to ten days. These symptoms include fever, a skin rash, red eyes, and coughing. However, these effects will last only for one to two days.

### POLIOMYELITIS VACCINE

#### FORM

Suspension for oral use

#### USE

Poliomyelitis vaccine provides active immunization against poliomyelitis.

#### DOSAGES

Give two to three drops by mouth according to the instructions on the label. Give polio vaccine when you give DPT vaccine at three, five, seven, and eighteen months of age. Give polio vaccine when you give DT vaccine at age five or six.

#### SIDE EFFECTS

None

#### WARNING

Do not give polio vaccine to children with fever or gastrointestinal illness.

Do not give polio vaccine two hours before or two hours after the child receives breast milk.

#### STORAGE

When stored at 0° to 4° C, poliomyelitis vaccine remains active for three months. These recommendations are not a substitute for the package insert included with each vaccine.

#### PATIENT INSTRUCTIONS

1. These drops will help to protect your child from becoming ill with polio.

2. Do not give your child breast milk for at least two hours before and after he receives these drops. If you do, then the drops will be destroyed and will not protect your child from polio.

### TETANUS TOXOID (Adsorbed Tetanus Vaccine, Adsorbed Tetanus Toxoid)

#### FORM

Solution for injection

#### USE

Tetanus toxoid provides active immunization against tetanus.

#### DOSAGES

Give 0.5 to 1.0 ml per dose, depending on the instructions of the manufacturer. Generally, give three doses. Give the second six to twelve weeks after the first. Give the third six to twelve months after the first.

To prevent tetanus of the newborn, give every pregnant woman a series of two injections at a four to six week interval during the third trimester.

#### SIDE EFFECTS

Local redness and swelling occur occasionally at the injection site.

#### WARNING

None

#### STORAGE

Store at 2° to 10°. Protect from light. Protect from freezing. These recommendations are not a substitute for the package insert included with each vaccine.

#### PATIENT INSTRUCTIONS

1. This injection will help to protect you from becoming ill with tetanus. Be sure that you receive a second and third shot if you have not had them before.
2. You may have some pain and swelling at the place where the vaccine was injected. The pain and swelling should go away in one to two days. If the pain and swelling last longer than two days, return to the health center.

# DRUGS ACTING ON THE HEART

## Anti-Anginal

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### GLYCERYL TRINITRATE (Nitroglycerin)

#### FORM

Tablets, 0.4 mg

#### USE

Glyceryl trinitrate is effective in reducing the pain in attacks of angina pectoris.

#### DOSAGES

A total of 0.4 mg to 1.2 mg under the tongue should provide relief during an attack of angina pectoris.

#### SIDE EFFECTS

Glyceryl trinitrate causes flushing and a warm feeling in the face, throbbing headache, nausea, and vomiting.

#### WARNING

This drug loses its effectiveness very rapidly. If the drug does not bring pain relief, obtain a new supply.

#### STORAGE

Store in the original glass container in a cool place. Keep tightly closed. Obtain a fresh supply every six months. The drug loses its strength in six to twelve months and will fail to give relief.

#### PATIENT INSTRUCTIONS

1. Take these tablets with you wherever you go.
2. Whenever you suddenly develop chest pain, stop whatever you are doing, sit down, and relax. Place one tablet under your tongue and let it dissolve.
3. If the pain continues for more than one to two minutes after you have taken one tablet, place a second tablet under your tongue. You may take a third tablet if necessary. However, do not take more than three tablets.
4. If the pain continues, then more tablets will not help. You may be suffering from a heart attack.

5. Keep the drug in an airtight container. Keep it out of reach of children. Keep it in a cool place away from light. Keep it out of contact with cotton. Replace the drug approximately once a month, because it loses its effectiveness rapidly.

## Diuretic

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### HYDROCHLOROTHIAZIDE (Esidrex, Hydrodiuril)

#### FORM

Tablets, 25 mg and 50 mg

#### USES

In cases of congestive heart failure, hydrochlorothiazide is used to rid the body of excess water. It is also used to lower blood pressure in patients with mild to moderate hypertension.

#### DOSAGES

Start the patient on 25 mg of hydrochlorothiazide twice a day. If he has swelling of his ankles, the drug may help to reduce the swelling. Try to reduce the amount of drug to 25 mg every other day as the patient's condition improves. When the patient has severe swelling of his ankles or fluid in his lungs from congestive heart failure, he may require up to 100 mg twice a day for one to two days.

#### SIDE EFFECTS

Hydrochlorothiazide causes loss of potassium from the body. Symptoms of low body potassium include weakness, tiredness, muscle cramps, and thirst. In addition, the drug sometimes causes skin rash, upset stomach, headache, dizziness, and weakness. However, these side effects are rare.

#### WARNING

If the patient's swelling or shortness of breath does not improve in twenty-four to forty-eight hours, refer him to a hospital for further care.

#### STORAGE

Store in airtight containers.



#### PATIENT INSTRUCTIONS

1. This drug causes your body to get rid of extra water through the urine. You should take only enough of the drug to get the proper effect from it.
2. Take 25 mg to 50 mg in the morning and in the late afternoon. If you take the drug at bedtime, you will have to rise within two to three hours to pass your urine.
3. As quickly as possible, you must reduce the total amount that you take of this drug. 25 mg every other day would be best.
4. This drug causes your body to lose an important mineral, potassium. You must replace the potassium by eating some food each day that contains it. Oranges, bananas, spinach, tomatoes, potatoes, peas, beans, and milk are all good sources of potassium.
5. Keep this drug out of reach of children.

### Other

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#### DIGOXIN

##### FORM

Tablets, 125 micrograms and 250 micrograms

##### USE

Digoxin is a form of digitalis. It is effective in the treatment of patients with congestive heart failure.

##### DOSAGES

Usually, a doctor at a hospital will start the patient on digoxin. When the patient has not received digoxin previously, or within the previous two weeks, and is suffering from congestive heart failure, he will require a total of up to 1.5 mg of digoxin over twenty-four hours. Give this amount in three divided doses, six to eight hours apart.

The total daily dose, after the initial large amount, is between 125 micrograms and 500 micrograms, as a single daily dose.

#### SIDE EFFECTS

Too much digoxin may cause the heart rate to fall below sixty beats per minute. The heart beat may become irregular. The patient may feel sick to his stomach, vomit, and develop a headache.

If the patient is not taking enough digoxin, he will have the signs and symptoms of heart failure. These include a rapid heart rate, collection of fluid in the lungs, and swelling of the legs and ankles.

#### WARNING

When the patient is taking hydrochlorothiazide in addition to digoxin, he must obtain extra potassium. He may do this by eating foods that contain potassium. Otherwise, he will lose potassium from his body and suffer from toxic effects of digoxin more rapidly.

#### STORAGE

Store in airtight containers.

#### PATIENT INSTRUCTIONS

1. This drug will help your heart to pump more strongly. You must remember to take the drug every day. You must plan to take it for the rest of your life.
2. Too much of this drug can cause side effects. Return to the health center if you develop nausea, vomiting, loss of appetite, headache, a very slow heart rate, or an irregular heart rate.
3. Return to the health center if you have increased difficulty breathing, especially at night. Return if you notice more swelling of your legs. This swelling means that the drug is not having the proper effect.
4. Keep this drug out of reach of children.

# DRUGS ACTING ON THE SKIN AND MUCOUS MEMBRANES

## Drug that Shrinks Mucous Membranes

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### PHENYLEPHRINE HYDROCHLORIDE (Neo-synephrine Hydrochloride)

#### FORM

Nasal solution, 0.25%

#### USE

Phenylephrine is used to drain the sinuses and relieve congestion. When instilled into the nose, phenylephrine makes the mucous membranes shrink and reduces the secretions. Ephedrine nasal drops have almost the same effect as phenylephrine.

#### DOSAGES

Two to three drops in each nostril every three to four hours will provide some relief from nasal congestion. Do not continue for more than three days.

#### SIDE EFFECTS

After the drops shrink the membranes and decrease congestion, the membranes often begin to swell. Warn the patient of this effect.

#### WARNING

None

#### STORAGE

Store in an airtight container. Protect from light. Discard if the solution becomes discolored.

#### PATIENT INSTRUCTIONS

1. Put two or three drops in each nostril to help you breathe more easily through your nose. However, do not use the drops more than four or five times a day, or for more than three days. The drops can damage your nose if you use them for longer than three days.
2. Keep this drug out of reach of children. Do not expose it to light. Throw the solution out if it is not clear.

## Antiseptic Solutions

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### POVIDONE-IODINE, 10% SOLUTION

#### FORM

Solution, 10%, equivalent of 1% available iodine

#### USES

Use povidone-iodine as a skin disinfectant and for hand scrub before putting on sterile gloves.

#### DOSAGES

Apply to the skin vigorously with gauze or cotton balls to remove bacteria.

#### SIDE EFFECTS

None

#### WARNING

None

#### STORAGE

Store in an airtight container. Protect from light.

#### PATIENT INSTRUCTIONS

This solution helps to eliminate germs from your skin. Scrub your skin with the solution for a few minutes each time.

### HYDROGEN PEROXIDE, 3% SOLUTION (Dilute Hydrogen Peroxide Solution, "10 Volume")

#### FORM

Solution, 3%

#### USES

Hydrogen peroxide is effective in destroying bacteria when applied to wounds, ulcers, and contaminated skin. It is also effective as a mouthwash in patients with gingivitis. It softens ear wax. And it helps to remove adherent bandages.



### DOSAGES

Use the 3% solution as a disinfectant on the skin. Tell the patient to dilute the solution with one part water to one part hydrogen peroxide 3% solution for use as mouthwash or ear drops.

### SIDE EFFECTS

None

### WARNING

Hydrogen peroxide is not intended for internal use except when diluted as a mouthwash.

### STORAGE

Store in a dark glass bottle with a glass stopper. Protect from light and keep tightly closed. Store in a cool place.

### PATIENT INSTRUCTIONS

1. For use as a mouthwash, dilute this drug with an equal amount of water. Rinse your mouth with the solution two to three times a day.
2. To fight infection in skin injuries, apply this drug directly to the injury. It will help the injury to heal properly.

## Anti-Inflammatory

### HYDROCORTISONE, 1% OINTMENT

#### FORM

Ointment, 1%

#### USES

Hydrocortisone 1% ointment is used to reduce itching, swelling, and discomfort in patients with eczema and contact dermatitis.

#### DOSAGES

Apply a very thin layer of ointment twice a day and rub into the skin thoroughly.

#### SIDE EFFECTS

None

#### WARNING

Do not use hydrocortisone ointment in the eyes. Do not apply it to skin rashes caused by viruses, such as canker sores or chicken pox.

### STORAGE

Store at room temperature. Protect from light.

### PATIENT INSTRUCTIONS

1. Put a small amount of ointment on your skin. Then rub it thoroughly into the skin.
2. Do not put this ointment on areas of skin that are wet or weeping. First dry the skin by using cold wet soaks for as long as necessary.
3. Keep this drug out of reach of children. Store it in a cool place and protect it from light.

## Anti-Fungals

### GENTIAN VIOLET, 1% SOLUTION

#### FORM

Solution, 1%

#### USE

Gentian violet is effective in the treatment of oral thrush.

#### DOSAGES

Paint gentian violet 1% solution on the white patches three times a day until they clear up.

#### SIDE EFFECTS

Gentian violet may rarely cause nausea, vomiting, diarrhea, and ulceration of mucous membranes. The solution stains clothing and skin.

#### WARNING

None

#### STORAGE

Store at room temperature.

### PATIENT INSTRUCTIONS

1. This drug will help to get rid of the white patches in your mouth. Paint the drug onto the patches three times a day until the patches have disappeared.
2. If you swallow too much of this drug, it may cause some nausea, vomiting, and headache. It may also cause sores in your mouth.
3. Keep this drug out of reach of children.

## WHITFIELD'S OINTMENT (Compound Benzoic Acid Ointment, Benzoic and Salicylic Acid Ointment)

### FORM

Ointment containing 6% benzoic acid and 3% salicylic acid

### USES

Applied to the skin, Whitfield's ointment is effective in the treatment of ringworm and other fungus infections of mild to moderate severity.

### DOSAGES

Apply the ointment two to three times per day for up to four to six weeks.

### SIDE EFFECTS

None

### WARNING

None

### STORAGE

Store at room temperature.

### PATIENT INSTRUCTIONS

1. You must apply this ointment for many weeks to get rid of your skin infection.
2. Apply the ointment at least three times a day to the skin lesions. Rub the ointment into the lesions thoroughly each time.
3. Keep this drug out of reach of children.

## NYSTATIN VAGINAL SUPPOSITORY TABLETS

### FORM

Tablets for vaginal use, 100,000 units

### USE

Nystatin suppositories are effective against monilial vaginitis.

### DOSAGES

Tell the patient to insert one tablet twice a day for three days, followed by one tablet daily for four more days.

### SIDE EFFECTS

None

### WARNING

None

### STORAGE

Store in an airtight container below 5°C and protect from light.

### PATIENT INSTRUCTIONS

1. Insert one tablet into your vagina in the morning and one at night for the next three days. Then insert one tablet every night for four more days. Moisten the tablet with water before you insert it into your vagina.
2. These tablets should reduce the itching and discharge from your vagina. If these symptoms do not clear up within one week, return to the health center.
3. Keep this drug out of reach of children.

## NYSTATIN ORAL SUSPENSION

### FORM

Powder for suspension, 100,000 U/ml when reconstituted

### USE

Nystatin oral suspension is effective in the treatment of oral thrush.

### DOSAGES

In infants, use 1 ml every six hours. Use twice this dosage in older children and adults. Paint the solution on the lesions. Have the patient swallow the remainder of the dose. Continue treatment until the lesions disappear.

### SIDE EFFECTS

This drug may rarely cause some nausea, vomiting, and diarrhea.

### WARNING

None

### STORAGE

Store the powder in an airtight container at below 5°C. Protect from light.

### PATIENT INSTRUCTIONS

1. This drug is very effective in clearing up the white patches that appear inside your cheeks.
2. Shake the bottle well each time before you use the drug.
3. Pour a very small amount of the drug into a small bottle cap. Then dip a cotton-tipped applicator into the solution and paint the



patches with it. Then swallow the rest of the drug.

4. Repeat this treatment about three times a day. Continue the treatment until all of the patches have disappeared. If the patches are still present after one week, return to the health center.
5. Keep this drug in a cool place out of reach of children.

## **Anti-Scabies, Anti-Lice**

### **BENZYL BENZOATE, 25% LOTION**

#### **FORM**

Lotion, 25%

#### **USES**

Benzyl benzoate lotion is effective in treatment of patients with scabies and lice.

#### **DOSAGES**

In treatment of scabies, apply benzyl benzoate lotion to the entire body. Two applications at a twenty-four hour interval are usually sufficient to destroy scabies, and 40 ml is sufficient for each application for an adult. In treatment of lice, apply the lotion only to infected areas and hairy areas. Reapply after one week.

#### **SIDE EFFECTS**

Benzyl benzoate lotion may cause a burning sensation and mild skin rash.

#### **WARNING**

Do not get benzyl benzoate lotion in the eyes.

#### **STORAGE**

Store in an airtight container, and protect from light.

#### **PATIENT INSTRUCTIONS**

##### **Treatment of Scabies**

1. Your entire family should take this treatment. Otherwise, those who have not been treated will infect the treated ones very quickly.
2. Wash the entire body with warm water and soap. Use a brush to gently rub the skin, especially the itchy areas.
3. After drying off, apply this lotion in a thin film over the entire body, from the chin to

the soles of the feet. Rub it into the itchy areas. Allow the lotion to dry. Do not wash it off.

4. After twenty-four hours, apply the lotion to the entire body again.
5. Twenty-four hours after the second application, wash the lotion off the entire body.
6. Wash all clothes and bedding. Iron them if possible in order to destroy the eggs.
7. Keep the drug out of reach of children.

##### **Treatment of Lice**

1. Rub benzyl benzoate lotion into the infected areas and hairy areas. Leave the lotion on overnight.
2. Repeat this treatment one week later. If you do not repeat the treatment, new lice will hatch from the eggs in about one week.
3. Wash all clothes and bedding. Iron them if possible in order to destroy the eggs.
4. Keep the drug out of reach of children.

### **GAMMA BENZENE HEXACHLORIDE (Lindane)**

#### **FORMS**

Cream, 1%

Shampoo, 1%

#### **USES**

Gamma benzene hexachloride is an effective insecticide that will kill both lice and scabies.

#### **DOSAGES**

25 g of gamma benzene hexachloride cream is sufficient to cover the entire body with a thin film. For scabies, following a bath with soap and water, apply cream to all parts of the body except the face. Wash the cream off after twenty-four hours.

For head lice, wet the scalp with water. Apply shampoo and work up a lather. Shampoo for five minutes, then rinse off. Comb with a fine-toothed comb to remove the eggs from the hair. Repeat the treatment after one week.

For pubic lice, wash the area with soap and water and dry with a rough towel. Apply cream to the entire area, including thighs, trunk, and arm pits. Wash off after twelve hours. Alternatively, apply shampoo to the entire area and work up a lather. Shampoo for five minutes,



then rinse the area. Comb with a fine-toothed comb to remove the nits from the hair. Repeat the treatment after one week.

#### SIDE EFFECTS

Gamma benzene hexachloride can cause skin rash if applied too frequently.

#### WARNING

Gamma benzene hexachloride may cause convulsions if taken by mouth.

#### STORAGE

Protect from light.

#### PATIENT INSTRUCTIONS

##### Treatment of Scabies

1. Bathe with soap and water. Dry yourself thoroughly.
2. Apply this drug to your entire body except your face. Leave the drug on your body for twenty-four hours.
3. If you have any itching after one week, repeat the treatment.
4. Keep this drug out of reach of children.

##### Treatment of Lice

1. Bathe with soap and water. Dry yourself thoroughly.
2. Massage the drug into the hair and surrounding skin. Continue to thoroughly massage the drug into the affected area for five minutes.
3. Then wash the drug off the area.
4. If necessary, repeat this treatment after one week.
5. Keep this drug out of reach of children.

#### DDT, 10% POWDER (Dicophane Dusting Powder, DDT Dusting Powder)

#### FORM

Powder, 10%

#### USES

DDT 10% powder is an insecticide that kills fleas and body lice.

#### DOSAGES

Dust clothes with DDT 10% powder only if boiling the clothes is not possible. Wash clothes after dusting them.

#### SIDE EFFECTS

None when properly used

#### WARNING

DDT is a poison. Symptoms of acute poisoning include vomiting, diarrhea, numbness, excitement, tremors, convulsions, and coma. Keep DDT out of reach of children.

#### STORAGE

Store in airtight containers and protect from light.

#### PATIENT INSTRUCTIONS

1. Dust DDT powder into the seams of your clothing. It will destroy fleas and lice that may be in the clothing.
2. Then wash your clothing.
3. DDT is a poison. Keep it out of reach of children.

### Others

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#### SELENIUM SULFIDE, 2.5% LOTION

#### FORM

Lotion, 2.5%

#### USES

Selenium sulfide is effective in the treatment of cradle cap and tinea versicolor.

#### DOSAGES

Apply the lotion to the affected area of skin and rub it into a lather. Rinse the lotion off after fifteen minutes. Repeat this application daily for four days. In the treatment of tinea versicolor, apply the lotion twice a week for two months.

#### SIDE EFFECTS

Selenium sulfide causes irritation to the eyes and mucous membranes.

#### WARNING

Selenium sulfide is very toxic if taken internally. Keep out of the reach of children.

#### STORAGE

Store at room temperature.

#### PATIENT INSTRUCTIONS

1. Apply this drug to the affected area of skin. Rub it into a lather.



2. After fifteen minutes, wash the drug off.
3. For tinea versicolor, follow this treatment twice a week for two months.
4. For cradle cap, follow this treatment daily for four days.
5. When taken by mouth, this drug is poisonous. Keep it out of reach of children.

### **PETROLATUM OINTMENT** (Yellow Petrolatum, Yellow Soft Paraffin, Vaseline)

#### **FORM**

Ointment

#### **USES**

Petrolatum ointment provides a protective covering when applied to the skin. It prevents the loss of water from dry, irritated skin in patients with eczema or other chronic skin conditions.

#### **DOSAGES**

Rub the ointment onto the skin as often as required to keep the skin lubricated.

#### **SIDE EFFECTS**

None

#### **WARNING**

None

#### **STORAGE**

Protect from light.

#### **PATIENT INSTRUCTIONS**

1. Apply petrolatum ointment to the skin as a thin film. It will help to keep the skin moist and to protect against irritation.
2. Keep this drug out of reach of children.

### **TRIPLE SULFA VAGINAL SUPPOSITORY TABLETS**

#### **FORM**

Tablets for vaginal use

#### **USES**

Use triple sulfa vaginal suppositories for patients with non-specific vaginitis, or patients who have not responded to treatment for trichomonal vaginitis or monilial vaginitis.

#### **DOSAGES**

Insert one tablet twice a day for three days and then one tablet each night for four more days.

#### **SIDE EFFECTS**

This drug can cause allergic reactions such as irritation of the skin and mucous membranes.

#### **WARNING**

None

#### **STORAGE**

Store in an airtight container.

#### **PATIENT INSTRUCTIONS**

1. Remove the wrapper and insert one tablet into your vagina. Repeat this twice daily for three days, and then each night for four more days.
2. If you notice increased irritation and itching in your vagina, stop using this drug and return to the health center.
3. Keep this drug out of reach of children.

### **CALAMINE LOTION**

#### **FORM**

Lotion

#### **USE**

Calamine lotion is useful in treating wet, irritated skin, because it has a mild drying effect on the skin.

#### **DOSAGES**

Following treatment with cold soaks, apply calamine lotion to moist, irritated areas of skin four to six times a day, as required.

#### **SIDE EFFECTS**

None

#### **WARNING**

None

#### **STORAGE**

Store at room temperature.

#### **PATIENT INSTRUCTIONS**

1. Apply calamine lotion to moist, irritated skin four to six times a day. It will soothe the skin and help to dry up skin lesions.
2. Keep this drug out of reach of children.

## DIETHYLSTILBESTROL VAGINAL SUPPOSITORY

### FORM

Suppository for vaginal use, 0.5 mg

### USE

Diethylstilbestrol is effective in the treatment of atrophic vaginitis.

### DOSAGES

One suppository twice a week for three weeks. Skip one week and repeat the cycle.

### SIDE EFFECTS

None

### WARNING

If a post-menopausal patient experiences vaginal bleeding while taking this drug, stop giving her the drug. Refer her to a hospital for further care. Do not use this drug in women who have family histories of cancer of the breast or female organs. Do not use it in women with liver disease.

### STORAGE

Store in an airtight container. Protect from light.

### PATIENT INSTRUCTIONS

1. These suppositories should help to control symptoms of burning, itching, and discharge.
2. Insert one suppository at bedtime on two days each week for three weeks. You must skip the fourth week before you begin the treatment again.
3. Keep this drug out of reach of children.

## Local Anesthetics

### LIDOCAINE WITHOUT EPINEPHRINE (Lidocaine Hydro- chloride Injection, Xylocaine, Lignocaine)

#### FORM

Solution for injection, 1% and 2%

#### USES

Use lidocaine without epinephrine to produce local anesthesia before cleaning and suturing

wounds and before performing and repairing an episiotomy.

### DOSAGES

A 1% solution usually produces satisfactory local anesthesia. Do not inject more than 20 ml of a 1% solution or 10 ml of a 2% solution. Always draw back on the needle before infiltrating, in order to avoid injection into a blood vessel.

### SIDE EFFECTS

An overdose of lidocaine can cause convulsions, low blood pressure, and respiratory arrest. Drowsiness may occur with usual dosages.

### WARNING

Use caution when giving this drug to a person with a history of convulsions or liver disease. Do not give this drug to a person who has reacted to it previously. Before you inject this local anesthetic, always check to make certain that the needle is not in a blood vessel. Injection into a blood vessel will cause an overdose.

### STORAGE

Store at room temperature.

### PATIENT INSTRUCTIONS

This drug will cause numbness of the skin at the place it is injected. This numbness will reduce the pain and discomfort you would otherwise feel.

### LIDOCAINE, 2% WITH EPINEPHRINE 1:80,000

#### FORM

1.8 ml cartridge for use with dental cartridge syringe

#### USE

Use lidocaine with epinephrine for dental anesthesia.

#### DOSAGES

1.0 to 2.0 ml usually provides sufficient anesthesia. Infiltrate directly into the gums, or use for nerve block.

#### SIDE EFFECTS

None

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## FORMULARY

### WARNING

None

### STORAGE

Store at room temperature.

### PATIENT INSTRUCTIONS

This drug will produce numbness of your teeth and gums so that you will feel only some pressure, but no pain.

# DRUGS ACTING ON THE NERVOUS SYSTEM

## Analgesics

### ASPIRIN (ASA, Acetylsalicylic Acid)

#### FORM

Tablets, 300 mg

#### USES

Aspirin is effective in reducing fever, in reducing the discomfort associated with many common illnesses, and in reducing inflammation in arthritis.

#### DOSAGES

The normal adult dosage is 600 mg every four to six hours. Children should receive 60 mg per year of age per dose, up to a maximum of 600 mg per dose.

In treatment of rheumatic fever, give a total daily dose of up to 130 mg of aspirin per kg body weight, divided into four to six doses. If ringing in the ears, nausea, or vomiting develop, reduce the dosage enough to eliminate these side effects.

#### SIDE EFFECTS

Aspirin can cause stomach irritation and bleeding, nausea, and vomiting. Ringing in the ears, dizziness, sweating, and confusion are signs of overdosage. Allergic reactions, including skin rash and asthma, may occur.

#### WARNING

Do not use aspirin in patients who have ulcers or other irritations of their upper intestines. Do not use it in children less than two years of age.

#### STORAGE

Store in airtight containers out of reach of children.

#### PATIENT INSTRUCTIONS

1. Take one to two tablets every four hours for pain, discomfort, and fever.
2. Aspirin can cause stomach irritation. Do not use aspirin if you have stomach ulcers.

Take aspirin with food or milk to reduce irritation.

3. Keep aspirin out of reach of children. It is poisonous in large doses.

### MORPHINE SULFATE

#### FORM

Solution for injection, 10 mg/ml

#### USES

Use morphine sulfate to relieve severe pain in myocardial infarction, cancer, and other causes of severe pain.

#### DOSAGES

Give adults 10 mg intramuscularly every four to six hours for severe pain. Give children over one year of age 0.2 mg per kg body weight per dose to a maximum of 10 mg per dose. Do not use morphine sulfate in infants.

#### SIDE EFFECTS

Morphine sulfate can cause nausea, loss of appetite, constipation, confusion, and sweating.

#### WARNING

Use morphine only in an emergency. Do not give morphine to patients in shock, or to patients with severe asthma, severe head injuries, or respiratory distress. Depression of respiration and blood pressure occur with larger doses. Continued use of morphine is habit-forming.

#### STORAGE

Store in an airtight container and protect from light.

#### PATIENT INSTRUCTIONS

1. This drug is a powerful pain-killer. It will help you to feel better.
2. This drug can make you feel sick to your stomach. It can cause sweating and constipation. It can cause you to feel confused.



## PETHIDINE HYDROCHLORIDE (Meperidine Hydrochloride)

### FORM

Solution for injection, 50 mg/ml

### USES

Useful for treating patients with pain that is not severe enough to require morphine. The pain relieving effect lasts for two to four hours after the injection.

### DOSAGES

Give adults 100 mg intramuscularly or subcutaneously every four to six hours. Give children one to two mg per kg body weight per dose.

### SIDE EFFECTS

Pethidine can cause dizziness, nausea, vomiting, sweating, headache, weakness, and dry mouth.

### WARNING

Use only in an emergency. Overdosage of pethidine can cause dilated pupils, convulsions, depressed respirations, and coma. Continued use of pethidine is habit-forming.

### STORAGE

Protect from light.

### PATIENT INSTRUCTIONS

This is a pain-killing drug. It can also cause some side effects, including dizziness, nausea, vomiting, sweating, headache, weakness, and dry mouth.

## Anti-Convulsants

### PHENOBARBITAL (Phenobarbitone)

#### FORMS

Tablet, 30 mg and 60 mg  
Elixir, 3 mg/ml

#### USES

Phenobarbital is effective in the control of grand mal epilepsy. It may be used to attempt to interrupt premature labor.

#### DOSAGES

To control seizures, give adults 60 mg at bedtime. Increase the dosage each week by 60 mg

to a maximum of 360 mg per day, or until the sedative effect becomes too troublesome. Give children 3 mg to 5 mg per kg body weight at bedtime. Increase the dosage each week until the seizures are under control or the child becomes too drowsy because of the drug.

#### SIDE EFFECTS

Side effects from phenobarbital are rare. However, overdosage and poisoning lead to decreased respirations, shock, and coma. Patients receiving too large a dose, over a longer period of time, develop many symptoms similar to alcohol intoxication.

#### WARNING

When a patient has been taking phenobarbital for a long period of time for control of convulsions, he must reduce the dose slowly over a period of several months. Otherwise, convulsions are likely to recur.

#### STORAGE

Store in an airtight container. Protect from light.

#### PATIENT INSTRUCTIONS

1. This drug may help to protect you from suffering further attacks of epilepsy.
2. Take the drug as directed.
3. Too much of this drug at one time can cause you to feel intoxicated. It can also cause you to have difficulty breathing.
4. Keep this drug out of reach of children.

### AMOBARBITAL SODIUM (Amylobarbitone Sodium)

#### FORM

Sterile solution for injection, prepared as a 10% solution by adding 2.5 ml of sterile water for injection to 250 mg of powder immediately before use.

#### USES

Amobarbital sodium is an alternative drug for use in control of continuous seizures related to grand mal epilepsy, rabies, and tetanus.

#### DOSAGES

To control continuous seizures, give amobarbital intravenously over a five to ten minute period. Alternatively, give the drug intramuscularly.

Adults 300 to 1000 mg IV as single dose  
 Children 3 to 12 mg IV per kg body weight as single dose

Begin with the smaller dose. If seizures continue, give additional injections of the drug. But do not exceed the maximum dose within a six hour period, or the patient may suffer from overdose.

**SIDE EFFECTS**

Overdosage of amobarbital sodium leads to depressed respirations, low blood pressure, shock, coma, and death.

**WARNING**

None

**STORAGE**

Store in airtight containers and protect from light.

**PATIENT INSTRUCTIONS**

This drug will help to prevent you from having more convulsions.

**DIAZEPAM (Valium)**

**FORM**

Solution for injection, 5 mg/ml

**USES**

Diazepam is effective in the control of repeated seizures associated with grand mal epilepsy, eclampsia during pregnancy, and eclampsia during labor. It is also effective in causing muscle relaxation in cases of tetanus.

**DOSAGES**

Give diazepam intravenously over a ten minute period.

Adults	10 mg over ten minutes, every fifteen minutes, to a total of 30 mg
Children	
5 to 10 years	1.0 mg over ten minutes, every fifteen minutes, to a total of 10 mg
Under 5 years	0.5 mg over ten minutes, every fifteen minutes, to a total of 5 mg

You may repeat the dosage after four hours.

To make intravenous injection at a slow rate easier, dilute diazepam in sterile water for injection.

1 ml Diazepam, 5 mg/ml, + 9 ml sterile water = 5 mg/10 ml solution, or 0.5 mg/ml solution

In patients with tetanus, give diazepam intramuscularly every four hours.

Adults	10 mg
Children	0.5 to 1.0 mg per kg body weight to a maximum of 10 mg

**SIDE EFFECTS**

Large dosages of diazepam cause drowsiness, light-headedness, and inability to walk or stand without swaying.

**WARNING**

Overdosage may lead to depressed respirations, low blood pressure, and coma.

**STORAGE**

Store in an airtight container and protect from light.

**PATIENT INSTRUCTIONS**

1. This drug will help to stop your convulsions. It will also cause your muscles to relax.
2. This drug can cause drowsiness or light-headedness. Too much of the drug can slow your breathing, lower your blood pressure, and cause unconsciousness.

**PHENYTOIN SODIUM (Diphenylhydantoin Sodium)**

**FORMS**

Tablets, 50 mg  
 Elixir, 100 mg/5 ml

**USES**

Phenytoin is effective in the control of seizures associated with grand mal epilepsy. Use it together with phenobarbital when one drug does not control the seizures.

**DOSAGES**

Start adults on 100 mg two times a day. Increase the dose by 100 mg per day every week, to a maximum of 600 mg per day or until the patient notices side effects. Give phenytoin in two doses daily.

Start children with a total of 5 mg to 7 mg per body weight per day, given in two doses.

See the patient weekly until you determine the proper dose. Then see the patient at least once a month.



### SIDE EFFECTS

Phenytoin may cause dizziness, nausea, drowsiness, vomiting, constipation, unsteady gait, slurred speech, mental confusion, headache, difficulty sleeping, and skin rash. Reducing the dosage will control many of these effects. Phenytoin also causes the gums to grow larger and thicker. The patient must brush his teeth regularly to help in preventing this effect.

### WARNING

Overdosage can lead to low blood pressure, respiratory depression, and coma.

### STORAGE

Store in an airtight container and avoid freezing.

### PATIENT INSTRUCTIONS

1. In order to prevent you from having more convulsions, you must remember to take this drug every day. If you suddenly forget to take the drug, you will be more likely to have another convulsion.
2. To obtain the most benefit from this drug, begin with the recommended dosage. Each week you will increase the dosage until you are either free from seizures, or you begin to suffer from side effects of the drug.
3. This drug can cause many side effects. They include dizziness, drowsiness, unsteadiness when walking, confusion, difficulty sleeping, and skin rash. The drug can also cause your gums to become larger. You must brush your teeth every day to help prevent your gums from becoming larger.
4. Keep this drug out of reach of children.

## ETHOSUXIMIDE

### FORM

Elixir, 250 mg/5 ml

### USES

Ethosuximide is an effective drug in controlling seizures in petit mal epilepsy. When petit mal and grand mal epilepsy occur in the same patient, you may use ethosuximide together with phenytoin and phenobarbital.

### DOSAGES

Give ethosuximide twice a day. If the patient is under six years of age, begin with 125 mg (2.5

ml) twice a day. For patients six years of age and older, begin with 250 mg (5 ml) in the morning and at night. Gradually increase the dose each week by 125 mg a day in patients under six years of age. Increase the dose of patients six years of age and older by 250 mg a day each week. The usual maximum dose for patients under six years of age is 1000 mg (20 ml) a day. Patients six years of age and older may require up to 1500 mg (30 ml) a day.

### SIDE EFFECTS

Drowsiness is a common side effect of ethosuximide. Nausea, vomiting, abdominal pain, and loss of appetite occur frequently. Other side effects also occur frequently.

### WARNING

Do not give ethosuximide to patients who have liver disease or kidney disease.

### STORAGE

Store in an airtight, light resistant container in a cool place.

### PATIENT INSTRUCTIONS

1. Remember to take this drug in the morning and at night.
2. Begin with a small amount of drug. Each week increase the dose until the seizures are under control or until you have reached the maximum dosage.
3. This drug can cause drowsiness. It may also cause nausea, vomiting, loss of appetite, and pain in the stomach. If any of these symptoms or other symptoms develop, come back to the health center immediately.
4. Keep this drug out of reach of children.

## MAGNESIUM SULFATE, 50% SOLUTION

### FORM

50% solution for injection, 1 g/2 ml

### USES

Magnesium sulfate, given intravenously or intramuscularly, is effective in controlling convulsions and lowering blood pressure in women suffering from eclampsia.

### DOSAGES

Give 6 ml to 8 ml of magnesium sulfate intramuscularly in each buttock after scrubbing the



skin with alcohol and iodine solutions to reduce the chance of infection. Move the needle during the injection, and massage the area afterwards. Continue to give one half of this dose every six hours until delivery has occurred and the symptoms have cleared up. Do not give magnesium sulfate if the woman is passing no urine or if she is suffering from respiratory depression, breathing less than sixteen times per minute, or in a deep coma.

#### SIDE EFFECTS

Toxic effects may occur. These include flushing of the face, thirst, severe lowering of the blood pressure, and respiratory depression.

#### WARNING

Do not give magnesium sulfate if the woman is passing no urine or if she is suffering from respiratory depression, breathing less than sixteen times per minute, or in a deep coma.

#### STORAGE

Store in an airtight container in a cool place.

#### PATIENT INSTRUCTIONS

When your blood pressure is very high, this drug helps to lower it. Although the drug may cause you to breathe more slowly, you need to have this injection.

### Insecticide Poisoning Antidote

#### ATROPINE SULFATE

##### FORM

Solution for injection, 1 mg/ml

##### USES

Atropine sulfate will counteract the effects of a certain group of insecticides known as organic phosphate insecticides. These poisons cause dizziness, headache, blurred vision, contracted pupils, excess tears and watering of the mouth, sweating, weakness, twitching of muscles, convulsions, and coma.

##### DOSAGES

Give adults 2 mg of atropine IM every five to ten minutes until the pupils are dilated and the other symptoms of poisoning have begun to lessen. Give up to 50 mg over a twenty-four hour period if necessary.

In children, give 0.05 mg per kg of body weight per dose.

#### SIDE EFFECTS

The side effects of atropine include dryness of the mouth, dilation of the pupils, flushing of the skin, slow heart rate followed by rapid heart rate and irregular heart rhythm.

#### WARNING

Overdosage leads to rapid respirations, confusion, and excitement.

#### STORAGE

Protect from light. If discolored, discard and obtain a new supply.

#### PATIENT INSTRUCTIONS

This drug will relieve the effects of the poisoning you are suffering. It will cause your mouth to feel dry and your skin to become flushed.

### Anti-Migraine

#### ERGOTAMINE TARTRATE AND CAFFEINE

##### FORM

Tablets with 2 mg of ergotamine tartrate and 100 mg of caffeine

##### USES

This drug may be helpful in blocking the development of migraine headaches. It may also reduce the severity of these headaches.

##### DOSAGES

One tablet at the first suggestion of a headache.

An additional tablet every thirty minutes for a total of three tablets, or until side effects develop or the headache ceases.

#### SIDE EFFECTS

Ergotamine tartrate and caffeine may cause nausea, vomiting, headache, diarrhea, thirst, numbness or tingling in the arms and legs, and coldness of the arms and legs.

#### WARNING

Advise the patient to take no more than twelve tablets in a week, or six tablets in one twenty-four hour period.



#### STORAGE

Protect from light.

#### PATIENT INSTRUCTIONS

1. You will be most successful in using this drug if you start taking it at the very first suggestion of a headache.
2. At the first suggestion of a headache, take one tablet. Then go into a dark, quiet room, lie down, and relax.
3. Take an additional tablet every thirty minutes for a total of three tablets.
4. Stop taking the tablets if you develop severe side effects from the tablets or the headache clears up. The tablets themselves may cause some nausea, vomiting, and headache. These effects may be difficult to distinguish from the migraine headache itself.
5. Additional side effects of this drug include diarrhea, thirst, numbness or tingling in the arms and legs, and coldness of the arms and legs.
6. This drug is very dangerous. Keep it out of reach of children.

### **Psychotherapeutic**

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#### **CHLORPROMAZINE HYDROCHLORIDE**

##### FORMS

Tablets, 25 mg  
Solution for injection, 25 mg/ml

##### USES

Chlorpromazine will help to quiet patients who are very agitated and upset and whose

minds are not functioning properly. It is also effective in reducing the vomiting associated with many acute illnesses such as acute gastroenteritis.

##### DOSAGES

Give adults 25 to 50 mg by mouth or intramuscularly to stop vomiting. Give children 1 mg per kg of body weight every four to six hours.

For severely disturbed patients, give 50 mg intramuscularly every four hours. Increase the dosage if required.

##### SIDE EFFECTS

Chlorpromazine may cause drowsiness, dryness of the mouth, low blood pressure, rapid heart rate, lowered body temperature, depression, or excitement.

##### WARNING

Do not use chlorpromazine in pregnant women. Do not give it to patients with acute alcoholism or liver disease. Do not give it to patients who are unconscious.

##### STORAGE

Store in airtight containers and protect from light.

##### PATIENT INSTRUCTIONS

1. This drug will help you to become calm. It will also stop vomiting.
2. This drug will cause drowsiness. It may make your mouth dry.
3. Keep this drug out of reach of children.

# DRUGS ACTING ON THE EYE

## TETRACYCLINE, 1% EYE OINTMENT

### FORM

Ophthalmic ointment, 1%

### USES

Tetracycline 1% eye ointment is useful in treating early trachoma. It is also useful in treatment of other types of bacterial conjunctivitis and treatment of injuries to the cornea. Use it as an alternative to penicillin G eye ointment in the treatment of gonococcal conjunctivitis in the newborn.

### DOSAGES

Apply the tetracycline 1% eye ointment to each eye twice daily. Continue the applications for four weeks in patients with early trachoma. Apply the tetracycline 1% eye ointment for up to seven days in patients with other types of conjunctivitis.

### SIDE EFFECTS

None

### WARNING

None

### STORAGE

Store in a cool place and protect from light.

### PATIENT INSTRUCTIONS

1. Clean your eyes out.
2. Then put this ointment into your eyes twice a day, as demonstrated.
3. Keep this drug out of reach of children.

## SILVER NITRATE, 1% SOLUTION

### FORM

Ophthalmic solution, 1%

### USE

Use 1% silver nitrate solution in newborns to prevent gonococcal conjunctivitis.

### DOSAGES

Apply two drops in each eye shortly after birth.

### SIDE EFFECTS

Silver nitrate may cause redness and irritation of the eyes, which will clear up within two to three days.

### WARNING

None

### STORAGE

Store in an airtight container and protect from light.

### PATIENT INSTRUCTIONS

1. This drug will prevent a very severe eye infection that sometimes occurs at birth.
2. The drug can cause some redness of the eyes, which will clear up in one to two days.

## PENICILLIN G EYE OINTMENT

### FORM

Ophthalmic ointment

### USE

Use penicillin G eye ointment for local treatment of conjunctivitis in the newborn.

### DOSAGES

Apply the penicillin G eye ointment to the conjunctivae after cleaning the eyes, every two hours for forty-eight hours, and then four times daily until the conjunctivitis has completely cleared up.

### SIDE EFFECTS

None

### WARNING

None

### STORAGE

Store in a cool place.

### PATIENT INSTRUCTIONS

This drug is helpful in treating inflammation of the eyes that develops shortly after birth.



# ANTI-ALLERGY

## CHLORPHENIRAMINE MALEATE

### FORMS

Tablets, 4 mg

Solution for injection, 10 mg/ml

### USES

Chlorpheniramine is very effective in controlling itchy skin lesions associated with eczema or drug reactions, and allergic symptoms associated with onchocerciasis.

### DOSAGES

#### In mild reactions

Adults 4 mg by mouth every three or four hours

#### Children

1 to 5 years 1 to 2 mg by mouth three times a day

#### In severe reactions

Adults 10 to 20 mg IM

#### Children

0.5 mg per kg body weight IM up to a maximum dosage of 10 mg

You may repeat the dosage, but do not exceed 40 mg over a twenty-four hour period.

### SIDE EFFECTS

May cause drowsiness

### WARNING

None

### STORAGE

Store in airtight containers and protect from light.

### PATIENT INSTRUCTIONS

1. This drug is very helpful in controlling the symptoms of allergy, especially itchy skin rash.
2. Keep this drug out of reach of children.

# ANTI-INFLAMMATORY

## BETAMETHASONE

### FORM

Tablets, 0.6 mg

### USE

Betamethasone is effective in reducing inflammation in certain conditions.

### DOSAGES

In the treatment of onchocerciasis, give 0.6 mg three times a day for the first week, and 0.6 mg daily for the second week. Give the drug for at least twenty-four hours before giving the first dose of diethylcarbamazine.

### SIDE EFFECTS

Side effects from betamethasone are unlikely when the patient takes the drug for a short period of time.

### WARNING

None

### STORAGE

None

### PATIENT INSTRUCTIONS

1. Take this drug three times a day for the first week. Take one 0.6 mg tablet each time.
2. Take the drug once a day for the second and third weeks.
3. Keep this drug out of reach of children.

# OTHER

## **PROBENECID (Benemid)**

### **FORM**

Tablets, 500 mg

### **USES**

Probenecid is used in the treatment of gonorrhea, pelvic inflammatory disease, and other infections, to slow down the elimination of penicillin through the kidneys. In this way, it helps to increase the level of penicillin in the blood after an oral or intramuscular dose of penicillin.

### **DOSAGE**

1 g one-half hour before injection of penicillin

### **SIDE EFFECTS**

At this dosage level, probenecid has no side effects.

### **WARNING**

None

### **STORAGE**

Store at room temperature.

### **PATIENT INSTRUCTIONS**

This drug will help to make the penicillin injection more effective than it would be otherwise.



# VITAMINS AND MINERALS

## FERROUS SULFATE

### FORMS

Oral suspension, 300 mg/10 ml

Tablets, 300 mg

### USES

Use ferrous sulfate in the prevention and treatment of anemia caused by lack of iron.

### DOSAGES

The dosage varies, depending upon whether treatment of anemia or prevention of anemia is required.

	TREATMENT	PREVENTION
Adults	300 mg three times a day	300 mg a day
Children		
6 to 12 years	300 mg twice a day	150 mg a day
1 to 6 years	150 mg three times a day	150 mg a day
Under 1 year	60 mg three times a day	60 mg a day

### SIDE EFFECTS

Ferrous sulfate may cause discomfort in the abdomen, nausea, constipation or diarrhea, and black stools.

### WARNING

Keep out of reach of children. Ferrous sulfate is poisonous if taken in overdosage.

### STORAGE

Store tablets in airtight containers. Store in a cool place.

### PATIENT INSTRUCTIONS

1. This drug contains iron, which your body needs in order to make blood properly.
2. Many foods contain iron. You must eat foods that contain iron so that your body will get the natural iron that it needs.
3. However, right now the drug will give your body an extra amount of iron. The iron will get into your blood most quickly if you take it when your stomach is empty.
4. If the drug causes you to feel sick to your stomach, or to have discomfort, take the drug right after eating. Do not take antacids while you are taking this drug. Antacids will prevent the body from using the drug.

5. This drug is poisonous in large doses. Keep it out of reach of children.

## FOLIC ACID

### FORM

Tablets, 1 mg

### USES

Use folic acid tablets for treatment and prevention of folic acid deficiency during pregnancy.

### DOSAGE

Give one tablet daily throughout pregnancy and lactation.

### SIDE EFFECTS

None

### WARNING

None

### STORAGE

Store in an airtight container and protect from light.

### PATIENT INSTRUCTIONS

1. Take one tablet daily to help prevent anemia.
2. Keep this drug out of reach of children.

## IRON AND FOLIC ACID

### FORM

Tablets containing ferrous fumarate, equivalent to 100 mg of iron, and 350 micrograms of folic acid

### USES

Use iron and folic acid tablets as a dietary supplement during pregnancy and lactation to prevent anemia.

### DOSAGE

One tablet daily throughout pregnancy and lactation

### SIDE EFFECTS

The iron part of the preparation, ferrous fumarate, may cause some abdominal pain, constipation, and black stools.

**WARNING**

None

**STORAGE**

Store in airtight containers and protect from light.

**PATIENT INSTRUCTIONS**

1. Take one tablet daily to help prevent anemia.
2. Keep this drug out of reach of children.

**VITAMIN A****FORMS**

Capsules, 25,000 IU

Solution for injection, 50,000 IU/ml

**USES**

Use both capsules and solution for injection in the treatment and prevention of Vitamin A deficiency.

**DOSAGES**

Give 100,000 units at the time of diagnosis. Repeat this dose on the following day and again in two weeks. Or give 25,000 units daily by mouth for the first two weeks after diagnosis.

**SIDE EFFECTS**

Toxic side effects occur with excessive doses of Vitamin A over a long period of time. Chronic effects include tiredness, irritability, loss of appetite and weight, vomiting, and fever.

Acute side effects include headache, sedation, irritability, and peeling of the skin.

**WARNING**

None

**STORAGE**

Store in airtight containers in a cool place. Protect from light.

**PATIENT INSTRUCTIONS**

None



# OBSTETRICAL AND CHILD SPACING

## ERGONOVINE MALEATE (Ergometrine Maleate)

### FORM

Sterile solution for injection, 0.2 mg/ml

### USES

Ergonovine is effective in controlling bleeding after delivery and during abortions in early pregnancy by causing the uterus to contract.

### DOSAGE

Give 0.2 mg IM. You may repeat this dose if necessary, up to five times over a twenty-four hour period.

### SIDE EFFECTS

Nausea and vomiting occur occasionally.

### WARNING

Give this drug very cautiously when the blood pressure is elevated.

### STORAGE

Protect from light and store in a cool place.

### PATIENT INSTRUCTIONS

This drug is very helpful in controlling bleeding. It causes the womb to clamp down and prevent further blood loss.

## ORAL CONTRACEPTIVES

### FORM

Packets of 28 tablets

### USES

The most frequently used type of oral contraceptive tablets prevents ovulation and pregnancy. The tablets contain a combination of artificial estrogen and progesterone. When the woman takes a tablet daily, the tablets prevent ovulation and pregnancy.

### DOSAGE

Follow the manufacturer's instructions. Usually, the woman takes one tablet per day.

### SIDE EFFECTS

Oral contraceptives may cause nausea, blood clots in the legs, increased blood pressure or

hypertension, headaches, increased blood sugar, vaginal bleeding or staining between menstrual periods, increased irritation or depression, weight gain from retention of water, and darkening of the skin.

### WARNING

Do not prescribe oral contraceptives if you detect a history of any of these problems:

- Blood clots or inflammation of leg veins
- Breast lumps or breast cancer
- High blood pressure
- Severe headaches
- Liver disease or jaundice
- Heart disease, including rheumatic heart disease
- Cancer of the uterus or cervix
- Unexplained vaginal bleeding for more than one week

### STORAGE

Store in airtight containers and protect from light.

### PATIENT INSTRUCTIONS

1. Take one tablet at the same time every day.
2. Begin with the first white tablet, five days after your menstruation begins.
3. Take one pill every day, following the line on the packet.
4. Take all of the white pills before you start taking the brown pills.
5. You will probably start to menstruate while you are taking the brown pills.
6. Continue taking a pill every day until you have finished the packet.
7. Two days before you finish the first packet, return to the health center for more packets and a follow-up visit. At this visit you will receive a three-month supply of oral contraceptives.
8. Start a new packet, beginning with the first white tablet, the day after you finish the old packet.
9. If you forget to take a tablet for a day, take that tablet as soon as you remember it. Also take the regular tablet for that day. If you

forget to take tablets for two days, use another method of child spacing for the rest of that month. However, continue to take one tablet a day until you finish the packet.

10. If you develop any severe headaches, difficulty with your vision, swelling of your legs, or other severe symptoms, return to the health center immediately.
11. You may experience some nausea when you first start taking the tablets. You may even vomit a little bit, as some women do in early pregnancy. You may have some bleeding from the vagina between menstrual periods. However, these common side effects are not reasons to stop taking the tablets.
12. Keep the drug out of reach of children.

## SPERMICIDES

### FORMS

Spermicidal cream with applicator  
Spermicidal jelly with applicator  
Spermicidal foam in pressurized can, with applicator

### USES

When inserted into the vagina before intercourse, spermicides will kill the sperm directly. Spermicides provide a chemical barrier that blocks the entrance of the sperm into the uterus, helping to prevent pregnancy. However, spermicides are not sufficient when used alone.

### DOSAGE

Follow the directions of the manufacturer.

### SIDE EFFECTS

Spermicides can cause burning and irritation of the vagina or penis.

### WARNING

None

### STORAGE

Store in an airtight container.

### PATIENT INSTRUCTIONS

Spermicidal cream or jelly

1. Use spermicidal cream or jelly in combination with a diaphragm.
2. Place spermicidal cream or jelly in the diaphragm cup before inserting the diaphragm.
3. Insert the diaphragm within two hours before intercourse.
4. Leave the diaphragm in place for six to eight hours after intercourse.
5. Keep the drug out of reach of children.

Spermicidal foam

1. Use spermicidal foam in combination with a condom.
2. Use two full applicators of spermicidal foam each time you have intercourse.
3. Insert the spermicidal foam within fifteen minutes before intercourse.
4. Leave the spermicidal foam in your vagina for six to eight hours after intercourse.
5. Keep the drug out of reach of children.





# ALPHABETICAL CROSS INDEX OF DRUGS

Alumina and magnesia	32	Glucose, 50% solution	39
Aminophylline	35	Glyceryl guaiacolate	35
Amobarbital sodium	54	Glyceryl trinitrate	43
Ampicillin	17	Griseofulvin	31
Aspirin	53	Hydrochlorothiazide	43
Atropine sulfate	57	Hydrocortisone, 1% ointment	46
BCG vaccine	40	Hydrogen peroxide, 3% solution	45
Benzathine penicillin	19	Ipecac syrup	32
Benzyl benzoate, 25% lotion	48	Iron and folic acid	62
Benzylpenicillin G	18	Isoniazid	26
Bephenium hydroxynaphthoate	15	Lidocaine, 2% with epinephrine 1:80,000	51
Betamethasone	60	Lidocaine without epinephrine	51
Calamine lotion	50	Lignocaine and hydrocortisone rectal suppository	33
Chloramphenicol	21	Magnesium sulfate crystals	33
Chloroquine phosphate	29	Magnesium sulfate, 50% solution	56
Chlorpheniramine maleate	60	Measles vaccine	41
Chlorpromazine hydrochloride	58	Mepacrine hydrochloride	28
Contraceptives, oral	64	Metronidazole	28
Dapsone	24	Mineral oil	33
DDT, 10% powder	49	Morphine sulfate	53
Dextrose, 5% in 1/2 normal saline	37	Niclosamide	14
Dextrose, 5% in water	37	Normal saline	38
Diazepam	55	Nystatin vaginal suppository tablets	47
Diethylcarbamazine citrate	16	Nystatin oral suspension	47
Diethylstilbestrol vaginal suppository	51	Oral contraceptives	64
Digoxin	44	Oral rehydration powder	34
DPT vaccine	40	Para-aminosalicylic acid	26
DT vaccine	41	Penicillin, benzathine	19
Epinephrine	35	Penicillin G, benzyl-	18
Ergonovine maleate	64	Penicillin G eye ointment	59
Ergotamine tartrate and caffeine	57	Penicillin G, procaine	20
Erythromycin	22	Penicillin V	20
Ethosuximide	56	Pethidine hydrochloride	54
Ferrous sulfate	62	Petrolatum ointment	50
Folic acid	62	Phenobarbital	54
Gamma benzene hexachloride	48		
Gentian violet, 1% solution	46		



# FORMULARY

Phenylephrine hydrochloride	45	Sterile water for injection	39
Phenytoin sodium	55	Streptomycin sulfate	25
Piperazine hydrate	14	Sulfadiazine	23
Poliomyelitis vaccine	42	Sulfadimidine	24
Povidone-iodine, 10% solution	45	Tetanus toxoid	42
Probenecid	61	Tetrachlorethylene	15
Procaine penicillin G	20	Tetracycline hydrochloride	22
Pyrantel pamoate	16	Tetracycline, 1% eye ointment	59
Quinine dihydrochloride	29	Thiacetazone	27
Ringer's lactate	38	Triple sulfa vaginal suppository tablets	50
Selenium sulfide, 2.5% lotion	49	Vitamin A	63
Silver nitrate, 1% solution	59	Whitfield's ointment	47
Spermicides	65		

# STANDARD LIST OF DRUGS

This list differs from and supercedes the list of drugs that appears on the Inventory, Order, Issue, and Receipt form for drugs and supplies in the Health Center Operations manual.

STOCK NUM- BER		UNIT OF ISSUE
001	Niclosamide, 500 mg tabs	bottle of 100
002	Piperazine hydrate, 150 mg/ml elixir	1 liter bottle
003	Bephenium hydroxynaphthoate granules, 2.5 g base	5 g packet
004	Tetrachlorethylene, 1 ml caps	bottle of 50
005	Tetrachlorethylene, 2.5 ml caps	bottle of 50
006	Tetrachlorethylene, 5 ml caps	bottle of 50
007	Pyrantel pamoate, 250 mg/5 ml oral suspension	1 liter bottle
008	Diethylcarbamazine citrate, 50 mg tabs	bottle of 50
009	Ampicillin, 250 mg caps	bottle of 100
010	Ampicillin, 125 mg/5 ml oral suspension	200 ml bottle
011	Ampicillin sodium, injection	500 mg vial
012	Benzylpenicillin G, 300 mg/ml injection	10 ml vial
013	Benzathine penicillin, 300 mg/ml injection	10 ml vial
014	Benzathine penicillin, 600 mg/ml injection	10 ml vial
015	Penicillin V, 125 mg tabs	bottle of 100
016	Penicillin V, 250 mg tabs	bottle of 100
017	Penicillin V, 250 mg/5 ml oral suspension	200 ml bottle
018	Procaine penicillin G, 300 mg/ml injection	10 ml vial
019	Procaine penicillin G, 600 mg/ml injection	10 ml vial
020	Chloramphenicol, 250 mg caps	bottle of 100
021	Chloramphenicol, 150 mg/5 ml oral suspension	1 liter bottle
022	Erythromycin, 250 mg caps	bottle of 100
023	Erythromycin, 200 mg/5 ml oral suspension	100 ml bottle
024	Tetracycline hydrochloride, 125 mg caps	bottle of 100
025	Tetracycline hydrochloride, 250 mg caps	bottle of 100
026	Sulfadiazine, 500 mg tabs	bottle of 100
027	Sulfadimidine, 500 mg tabs	bottle of 100
028	Sulfadimidine, 500 mg/5 ml mixture	1 liter bottle
029	Dapsone, 25 mg tabs	bottle of 500
030	Dapsone, 100 mg tabs	bottle of 1000
031	Streptomycin sulfate, 500 mg/ml injection	10 ml vial
032	Isoniazid, 50 mg tabs	bottle of 500



# FORMULARY

033	Isoniazid, 100 mg tabs	bottle of 500
034	Para-aminosalicylic acid, 500 mg tabs	bottle of 500
035	Thiacetazone, 50 mg tabs	bottle of 100
036	Thiacetazone, 75 mg tabs	bottle of 100
037	Thiacetazone, 100 mg tabs	bottle of 100
038	Metronidazole, 250 mg tabs	bottle of 100
039	Mepacrine hydrochloride, 100 mg tabs	bottle of 100
040	Quinine dyhydrochloride	1 packet
041	Chloroquine phosphate, 250 mg tabs	bottle of 100
042	Chloroquine phosphate, 65 mg/ml injection	5 ml vial
043	Griseofulvin, 125 mg tabs	bottle of 50
044	Griseofulvin, 250 mg tbs	bottle of 50
045	Alumina and magnesia, oral suspension	1 liter bottle
046	Alumina and magnesia, tabs	bottle of 100
047	Ipecac syrup	100 ml bottle
048	Lignocaine and hydrocortisone rectal suppository	box of 5
049	Mineral oil	1 liter bottle
050	Magnesium sulfate crystals	1 kg jar
051	Oral rehydration powder	1 packet
052	Aminophylline, 100 mg tabs	bottle of 100
053	Epinephrine, 1 mg/ml 1:1000 solution injection	1 ml vial
054	Glyceryl guaiacolate, 100 mg/5 ml syrup	1 liter bottle
055	Glyceryl guaiacolate, 200 mg caps	bottle of 100
056	Dextrose, 5% in water	1 liter bottle
057	Dextrose, 5% in 1/2 normal saline	1 liter bottle
058	Normal saline	1 liter bottle
059	Ringer's lactate	1 liter bottle
060	Glucose, 50% solution	100 ml bottle
061	Sterile water for injection	2 ml vial
062	Sterile water for injection	10 ml vial
063	BCG vaccine	10 dose vial
064	DPT vaccine	7.5 ml vial
065	DT vaccine	5 ml vial
066	Measles vaccine	single dose vial
067	Poliomyelitis vaccine	5 ml bottle
068	Tetanus toxoid	5 ml bottle
069	Glyceryl trinitrate, 0.4 mg tabs	bottle of 20
070	Hydrochlorothiazide, 25 mg tabs	bottle of 100
071	Hydrochlorothiazide, 50 mg tabs	bottle of 100
072	Digoxin, 125 microgram tabs	bottle of 100
073	Digoxin, 250 microgram tabs	bottle of 100
074	Phenylephrine hydrochloride, 0.25% solution	100 ml bottle

075	Povidone-iodine, 10% solution	1 liter bottle
076	Hydrogen peroxide, 3% solution	1 liter bottle
077	Hydrocortisone, 1% ointment	20 g tube
078	Gentian violet, 1% solution	100 ml bottle
079	Whitfield's ointment	250 g jar
080	Nystatin vaginal suppository tablets	bottle of 100
081	Nystatin oral suspension, 100,000 U/ml	500 ml bottle
082	Benzyl benzoate, 25% lotion	1 liter bottle
083	Gamma benzene hexachloride, 1% cream	250 g jar
084	Gamma benzene hexachloride, 1% shampoo	500 ml bottle
085	DDT, 10% powder	1 kg box
086	Selenium sulfide, 2.5% lotion	250 ml bottle
087	Petrolatum ointment	500 g jar
088	Triple sulfa vaginal suppository tablets	box of 10
089	Calamine lotion	1 liter bottle
090	Diethylstilbestrol vaginal suppository	box of 20
091	Lidocaine without epinephrine, 1% injection	50 ml vial
092	Lidocaine without epinephrine, 2% injection	50 ml vial
093	Lidocaine with epinephrine, 2% injection for dental use	1.8 ml cartridge
094	Aspirin, 300 mg tabs	bottle of 100
095	Morphine sulfate, 10 mg/ml injection	1 ml vial
096	Pethidine hydrochloride, 50 mg/ml injection	1 ml vial
097	Phenobarbital, 30 mg tabs	bottle of 100
098	Phenobarbital, 60 mg tabs	bottle of 100
099	Phenobarbital, 3 mg/ml elixir	500 ml bottle
100	Amobarbital sodium, powder for solution	250 mg vial
101	Diazepam, 5 mg/ml injection	10 ml vial
102	Phenytoin sodium, 50 mg tabs	bottle of 100
103	Phenytoin sodium, 100 mg/5 ml elixir	1 liter bottle
104	Ethosuximide, 250 mg/5 ml elixir	1 liter bottle
105	Magnesium sulfate, 50% solution for injection	2 ml vial
106	Atropine sulfate, 1 mg/ml injection	10 ml vial
107	Ergotamine tartrate (2 mg) and caffeine (100 mg), tabs	bottle of 50
108	Chlorpromazine hydrochloride, 25 mg tabs	bottle of 50
109	Chlorpromazine hydrochloride, 25 mg/ml injection	10 ml vial
110	Tetracycline, 1% eye ointment	4 g tube
111	Silver nitrate, 1% solution	5 ml bottle
112	Penicillin G eye ointment	4 g tube
113	Chlorpheniramine maleate, 4 mg tabs	bottle of 50
114	Chlorpheniramine maleate, 10 mg/ml injection	30 ml vial
115	Betamethasone, 0.6 mg tabs	bottle of 10
116	Probenecid, 500 mg tabs	bottle of 50



## FORMULARY

117	Ferrous sulfate, 300 mg/10 ml oral suspension	1 liter bottle
118	Ferrous sulfate, 300 mg tablets	bottle of 100
119	Folic acid, 1 mg tablets	bottle of 100
120	Iron and folic acid, tablets	bottle of 1000
121	Vitamin A, 25,000 IU caps	bottle of 100
122	Vitamin A, 50,000 IU/ml injection	10 ml vial
123	Ergonovine maleate, 0.2 mg/ml injection	1 ml vial
124	Oral contraceptives	packet of 28
125	Spermicidal jelly or cream	100 g container
126	Spermicidal foam	100 g container

**DIAGNOSTIC AND PATIENT CARE  
GUIDES**





**The MEDEX Primary Health Care Series**

# **DIAGNOSTIC AND PATIENT CARE GUIDES**

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# Preface

Diagnostic and Patient Care Guides is a reference manual. Use it with the Formulary and Patient Care Procedures manual in your health center.

The Diagnostic and Patient Care Guides are based on the diseases and conditions that are described in the mid-level health worker training modules of the MEDEX Primary Health Care Series. The most characteristic symptoms and signs of each condition are described in the presenting complaint, medical history, and physical examination sections of the training modules. These are the symptoms and signs that are listed at the beginning of the Diagnostic and Patient Care Guide for each disease or condition in this manual.

Patient Care, which follows the Symptoms and Signs, provides a summary of the care that is recommended in the training modules. Because antibiotic dosages are required so frequently, they are summarized separately in the Guide for Calculating Antibiotic Dosages.

The conditions that are listed in the Diagnostic and Patient Care Guides are in nearly the same order as they appear in the training modules. This order may help you to locate the condition that you suspect the patient is suffering from. The diseases and conditions are also listed in an alphabetical table of contents. Review the symptoms and signs of the condition, as well as the patient care, before diagnosing and treating the patient.



# Guide for Calculating Antibiotic Dosages

## Guidelines for Use of Antibiotics

### PENICILLIN

The Diagnostic and Patient Care Guides usually mention the type and amount of penicillin to use for treatment of specific diseases. However, in each case you must decide what is most appropriate for the patient you are treating.

The type and amount of penicillin that you give, and the method of giving it—oral, intramuscular, intravenous—depend upon several factors. These include the kind of illness the patient is suffering, the severity of the illness, the patient's body weight, and the likelihood that the patient will take the drug regularly.

A patient who is very ill requires high levels of penicillin in his blood stream. You can achieve these high levels by using benzylpenicillin G (crystalline penicillin G, or aqueous penicillin) either intravenously or intramuscularly. If you add oral probenecid, the level of penicillin in the blood will remain high for several hours. However, by six to eight hours after the injection, the penicillin in the blood will fall to low levels again. For this reason, you must give injections every four to six hours. An exception to this is in the treatment of gonorrhea, which requires a very high level of penicillin in the blood, but for only a short period of time.

Most patients you treat in the clinic will not require benzylpenicillin G. Unless the patients are extremely ill, you can treat most illnesses such as pneumonia by giving intramuscular procaine penicillin G every twelve hours. Procaine penicillin G produces an adequate level of penicillin in the blood for twelve to twenty-four hours.

Oral penicillin V (phenoxymethylpenicillin) is absorbed from the intestines into the blood stream quite quickly. However, oral penicillin usually will not provide a high level of penicillin in the blood. And oral penicillin is effective only if the patient takes the tablets regu-

larly. Often, patients stop taking tablets as soon as they begin to feel better. Before you give the patient oral penicillin, you must decide whether the patient is likely to take the drug regularly.

An injection of benzathine penicillin produces low levels of penicillin in the blood. However, the penicillin remains in the body for several weeks after a single injection. This low level of penicillin, over a long period of time, is sufficient for the treatment of patients with bacterial tonsillitis or impetigo.

The dosages of penicillin shown in the following table are only a rough guide for you to follow. All doses are given in milligrams. For reference, note that 600 mg of benzylpenicillin G is equivalent to 1 million units, and 1000 mg of procaine penicillin G is equivalent to 1 million units.

You must keep epinephrine and a small syringe and needle on hand at all times at the health center. Do not administer antibiotics unless you have these supplies ready to use. If the patient suddenly develops the symptoms and signs of anaphylactic shock, carry out the following procedures.

- a. Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.
- b. Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages:

Adults and children	
40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc



- c. Record the patient's pulse, respiratory rate, and blood pressure every five minutes.
- d. If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.
- e. If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.
- f. If the patient has swelling and itching of the skin, give him 10 mg of chlorpheniramine IM. Give children 0.5 mg per kg of estimated body weight, up to a maximum dosage of 10 mg.
- g. If signs of shock continue for more than thirty minutes, transfer the patient to a hospital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

Treat less severe reactions with an anti-allergy drug. See Patient Care Guide for Skin Reactions to Drugs.

## AMPICILLIN

Ampicillin is effective against many of the same bacteria as penicillin. Give patients who have very high fever and appear to be very ill ampicillin intramuscularly. You may treat less seriously ill patients with oral ampicillin. The patient care guides for individual diseases indicate the conditions for which you should use ampicillin.

Because ampicillin is very similar to penicillin, you should not use ampicillin in patients who have had a reaction following penicillin.

## ERYTHROMYCIN

Erythromycin is less powerful than many of the other antibiotics. However, oral erythromycin is quickly absorbed into the blood stream. Use erythromycin as a substitute for penicillin when your patient is allergic to penicillin. Diagnostic and Patient Care Guides for specific diseases give the indications for use of erythromycin.

## CHLORAMPHENICOL (Chloromycetin)

Chloramphenicol is a very powerful antibiotic. It is effective when given to patients with typhoid fever. It is also effective in several other conditions, including septic arthritis, croup, and meningitis in children under seven years of age.

Chloramphenicol can cause very severe reactions. It can cause a severe anemia that can lead to the death of the patient. Therefore, you must use the drug only for the conditions mentioned above. Oral chloramphenicol is quickly absorbed from the intestines.

Do not use chloramphenicol in pregnant women who are near to term or women who are breast-feeding their infants. Do not use chloramphenicol in infants under two months of age. The drug is very dangerous to small infants.

## TETRACYCLINE

Tetracycline is a useful antibiotic for patients with urinary tract infection, prostatitis, chronic bronchitis, typhus, bacterial gastroenteritis, and trachoma. The drug is quickly absorbed through the intestines. Therefore, you need not give the drug intramuscularly.

Do not give tetracycline to women who are pregnant or to women who are breast-feeding their infants. Do not use this drug in children under the age of eight unless no other drug is available. The drug can cause a permanent stain of the teeth. However, this problem should not occur if you give the drug for only a short course of five days.

## ANTIBIOTIC DOSAGES

Use the following dosages for the antibiotics shown. Give each dose shown every six hours. The dose is based upon the patient's estimated body weight. Continue the antibiotics for the length of time specified in the patient care guide for the condition that you are treating.



# DIAGNOSTIC AND PATIENT CARE GUIDES

	ADULTS AND CHILDREN 40 KG AND OVER	CHILDREN 20 TO 40 KG	CHILDREN 10 TO 20 KG	CHILDREN 5 TO 10 KG	CHILDREN UNDER 5 KG
Benzylpenicillin G Intramuscular (crystalline penicillin G, aqueous penicillin)	500 mg	300 mg	200 mg	75 mg	75 mg
Procaine penicillin G Intramuscular every twelve hours	900 mg	600 mg	300 mg	150 mg	75 mg

WARNING: DO NOT GIVE PROCAINE PENICILLIN G TO NEWBORNS.

Penicillin V Oral tablets or suspension (phenoxymethyl penicillin)	500 mg	250 mg	125 mg	60 mg	60 mg
Ampicillin Mild to moderate infection Oral capsules or suspension	750 mg	500 mg	250 mg	125 mg	60 mg
Severe infection Intramuscular	1500 mg	1000 mg	500 mg	250 mg	125 mg

WARNING: DO NOT USE AMPICILLIN IN PATIENTS WITH ALLERGY TO PENICILLIN.

Erythromycin Oral capsules or suspension	500 mg	250 mg	200 mg	100 mg	50 mg
Chloramphenicol Oral capsules or suspension	500 mg	250 mg	150 mg	75 mg	

WARNING: DO NOT GIVE CHLORAMPHENICOL TO INFANTS UNDER TWO MONTHS OF AGE. USE ONLY FOR CONDITIONS INDICATED IN THE DIAGNOSTIC AND PATIENT CARE GUIDES AND FORMULARY.

Tetracycline Oral tablets Mild to moderate infection	250 mg	125 mg			
Severe infection	500 mg	250 mg			

WARNING: DO NOT USE TETRACYCLINE IN CHILDREN UNDER EIGHT YEARS. DO NOT USE TETRACYCLINE IN PREGNANT WOMEN OR NURSING MOTHERS, UNLESS YOU ARE TREATING LIFE-THREATENING ILLNESS.

# Guide for When to Give Immunizations

Follow this schedule for giving children immunizations against common childhood diseases. Refer to the Formulary for a specific discussion of dosages, site of injection, side effects, warnings, storage, and patient instructions.

AGE	IMMUNIZATION
Newborn	BCG
3 months	DPT 1 Oral polio vaccine 1
5 months	DPT 2 Oral polio vaccine 2

7 months	DPT 3 Oral polio vaccine 3
9 months and older	Measles vaccine
18 months	DPT 4 Oral polio vaccine 4
When the child enters primary school (5 to 6 years)	DT Oral polio vaccine Follow the national guidelines of your country for giving a second BCG vaccination to children entering school.

## Guide for Reducing Fever

Most infectious diseases cause the body temperature to rise. Fever is an important sign of illness. It also makes the patient feel uncomfortable. When the fever is very high, it can lead to convulsions.

Advise the patient to take aspirin when he develops a fever or feels uncomfortable. Use the following dosages:

	MAXIMUM	IN 24 HOURS
Adults and children 10 years and over	600 mg every 4 hrs	3.6 g
Children 5 to 10 years	300 mg every 4 hrs	1.8 g
2 to 5 years	150 mg every 4 hrs	900 mg
Under 2 years	Do not use	

Warn the patient that aspirin may irritate his stomach. Tell him that if aspirin causes irri-

tation or discomfort, he should take the aspirin with some food, water, or milk.

When the fever is very high, sponge the patient. Demonstrate the technique to the parents, and encourage them to sponge their child until he feels cooler. When you sponge younger children, remove their clothing. Use a large pan filled with water at room temperature. Obtain several towels or large pieces of cloth. Soak the towels in the water, and then cover the child with the towels. Cover his forehead as well. Every three to four minutes, put the towels back into the pan to rinse them out. Then put the towels on the child's body again. This treatment will reduce the child's fever within thirty to sixty minutes.

When children develop fever, parents often dress them very warmly in order to prevent a chill. However, this prevents the body from losing heat. Encourage the family to remove the child's clothing and to keep the child out of drafts.



# Guide for Calculating How Much Intravenous Fluid to Give a Patient

## Types of Fluids

Your Formulary lists four types of intravenous fluid. Their uses depend upon the kind of problem that the patient has. The following brief descriptions will guide you in the proper uses of intravenous fluids.

### NORMAL SALINE SOLUTION

Normal saline solution is a solution of salt in water. The amount of salt, or sodium chloride, is 0.9% by weight. The concentration of sodium in this solution is almost identical to the concentration of sodium in blood. For this reason, such a solution is valuable when a patient has lost blood rapidly and is in danger of shock. The salt solution will tend to remain inside the blood vessels and help to keep the blood pressure from falling.

### HALF-NORMAL SALINE SOLUTION IN 5% DEXTROSE

This solution contains half the amount of sodium that is found in the normal saline solution. In addition, it contains sugar. This solution is useful in many situations in which the patient is not in immediate danger of shock. Use it when the patient requires intravenous fluids to replace the salt and water that he has lost through sweat and urine. The sugar provides useful energy for the body, especially when the patient is unable to take food by mouth.

### RINGER'S LACTATE SOLUTION

In addition to sodium chloride, this solution contains some potassium, calcium, and bicarbonate. It is a useful solution when the patient has lost fluids through vomiting or diarrhea. It contains slightly less sodium than normal sa-

line solution. But it contains other important minerals that the body needs because the patient loses them in vomit and stool.

### 5% DEXTROSE SOLUTION

This is the solution that you will use most frequently. Whenever the patient requires fluid to replace the fluids lost through lungs, skin, and kidneys, you should replace most of the fluid with a sugar solution. The total amount of fluid to be replaced, and the amount to be replaced by a normal saline solution is shown in the table below. From this table you can see that the body requires mainly water to maintain itself. However, never give an intravenous infusion of sterile water. Sterile water alone, when injected into the blood stream, will destroy the blood cells. However, the sugar prevents this risk and also furnishes the body with an important source of energy.

## Amount of Fluid Required

The body loses water and various minerals and salts through the skin, through the lungs, and through the kidneys. Normal daily consumption of food and water replaces these substances. Under normal conditions, and when a person is in good health, the body obtains what it needs and easily discards what it does not need. The water and minerals that the body needs each day are known as MAINTENANCE requirements. They maintain the body in good health.

When a person is ill, the maintenance requirements for water and for minerals are often higher than at other times. With fever, the body uses more water than normally. Water is lost through the lungs and through the skin to keep the body cool. When a person breathes rapidly and heavily, he loses large amounts of

water through the lungs.

When you must replace fluids and minerals that a person has lost because of bleeding, severe vomiting or diarrhea, or a severe burn, these fluids and minerals are called REPLACEMENT fluids and minerals. The body needs these in addition to the MAINTENANCE requirements. Replacement requirements are discussed in the patient care guides for specific conditions

If a person is unable to take fluids by mouth, because he is unconscious or too ill to swallow, then you must provide the fluids intravenously. The amount of fluid and minerals that the patient requires will depend upon many factors. However, the following table provides a

rough guide. The table shows the average amount of fluid and salt that will meet the MAINTENANCE requirements over a twenty-four hour period. The table is based upon the needs of people with different body weights. Children require proportionately more fluids than adults.

Use the following table to guide you in estimating how much intravenous fluid the patient needs in twenty-four hours. Give the recommended amount of normal saline, Ringer's lactate, or 5% dextrose in 1/2 normal saline. Subtract this amount from the total ml of fluid. Give the remaining ml of fluid as 5% dextrose in water.

BODY WEIGHT	TOTAL ML OF FLUID	ML OF NORMAL SALINE OR RINGER'S LACTATE	ML OF 5% DEXTROSE IN 1/2 NORMAL SALINE
60 kg	2500 ml	500 ml	1000 ml
45 kg	1800 ml	350 ml	700 ml
30 kg	1500 ml	250 ml	500 ml
15 kg	1000 ml	175 ml	350 ml
10 kg	800 ml	140 ml	280 ml
5 kg	600 ml	120 ml	240 ml
2.5 kg	400 ml	100 ml	200 ml

If the patient produces less than 500 ml of urine over a twenty-four hour period, or if he has signs of dehydration, then you must increase the amount of fluid that he is receiving. Unless the patient has a disease that prevents his kidneys from making urine, the kidneys will eliminate extra water from the body.

However, you can easily overload the patient with salt so that he develops signs of heart failure. When the patient is receiving intravenous fluids, always watch him closely for evidence of heart failure, as well as for evidence of too little fluid. Do not continue the intravenous fluids any longer than is absolutely necessary.



# RESPIRATORY AND HEART

## Respiratory System Problems

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### PNEUMONIA

#### SYMPTOMS

Severe cough  
High fever, often with chills  
Possible chest pain with deep breathing or coughing  
Yellow sputum, sometimes with blood in it  
Difficulty breathing

#### SIGNS

High fever  
Increased breathing rate  
Flaring nostrils and intercostal retractions  
Uneven expansion of chest, with tenderness on one side  
Flat percussion note over areas of congestion

#### Rales

Abnormal bronchial breath sounds

Cyanosis

#### PATIENT CARE

- Observe the patient for at least twenty-four hours after you start treatment. Record his temperature, pulse, and respiratory rate every four hours. If the patient shows signs of improvement after twenty-four hours, he may return home. Observe seriously ill patients for a longer time.
- Use an antibiotic to treat the patient. If the patient is not allergic to penicillin, start procaine penicillin G IM. If the patient improves after twenty-four to forty-eight hours, switch to oral penicillin V. If the patient is allergic to penicillin, use erythromycin. See Guide for Calculating Antibiotic Dosages.
- Give the patient extra fluids. Encourage the patient to drink at least one glass of water, milk, tea, or juice every one to two hours while he is awake.
- Control the fever. If the patient's temperature is over 38°C, give him 600 mg of aspi-

rin every four hours. Give a child 60 mg of aspirin per year of age, up to ten years of age. If the fever is over 39°C, bring it down by using wet towels. See Guide for Reducing Fever.

- If the patient's coughing is severe, give him a cough expectorant, such as glyceryl guaia-colate.
- Improve the patient's nutrition. If the patient is an infant, encourage the mother to continue breast-feeding.
- If the patient has not started to improve after twenty-four to forty-eight hours of treatment, refer him to a hospital. Refer him immediately if his condition grows worse.

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### ACUTE BRONCHITIS

#### SYMPTOMS

Severe cough  
Green or yellow sputum  
Dry, tight throat with fever  
History of general discomfort, fever, and runny nose

#### SIGNS

Rhonchi  
Wheezing  
Redness of the nasal mucosa  
Red throat  
Nasal discharge  
No rales  
No change in percussion note  
No difficulty breathing

#### PATIENT CARE

- Encourage the patient to rest while he is suffering from acute bronchitis.
- Encourage the patient to drink extra fluids. One glass of water, juice, tea, or other fluid

every one to two hours will help the body fight the infection.

- c. You can reduce the patient's fever and discomfort by giving him aspirin. Give 600 mg every four hours to adults. Give 60 mg per year of age to children under ten years of age.
- d. Use a cough expectorant to soothe the patient's throat and ease the coughing. One to two teaspoons of glyceryl guaiacolate every four hours may help.
- e. Encourage the patient to stop smoking. Bronchitis is more frequent and more severe in patients who smoke.
- f. If the patient is an infant, or if the patient is an older person who has had lung disease earlier, use an antibiotic to treat the acute bronchitis. If the patient is not allergic to penicillin, use procaine penicillin G. Otherwise use erythromycin. Continue the antibiotic treatment for five days. See Guide for Calculating Antibiotic Dosages.

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## CHRONIC BRONCHITIS AND EMPHYSEMA

### SYMPTOMS

Morning cough  
Coughs up variable quantity of greenish sputum daily  
History of smoking

History of pneumonia or acute bronchitis  
With emphysema, gradual onset of shortness of breath

### SIGNS

Rhonchi and wheezing on auscultation  
With emphysema, prolonged expiration and barrel chest

### PATIENT CARE

- a. If the patient smokes, tell him that stopping smoking is the most important preventive action that he can take.
- b. Encourage the patient to drink extra fluids. These extra fluids will help to thin the secretions in the chest so that the patient can cough them up more easily. Use a cough expectorant to soothe the patient's throat and

ease the coughing. One to two teaspoons of glyceryl guaiacolate every four hours may help.

- c. When the patient develops evidence of acute bronchitis, treat him with an antibiotic. Use ampicillin if the patient is not allergic to it. Otherwise use erythromycin. Continue the antibiotic for one week. See Guide for Calculating Antibiotic Dosages.

### PREVENTION

- a. Irritation of the airways from tobacco smoke is a major cause of chronic bronchitis. Urge the patient not to smoke.
- b. Inspect the patient's place of work. Dust, dirt, or fumes will make his problem worse.

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## BRONCHIAL ASTHMA

### SYMPTOMS

Sudden onset of difficulty breathing  
Possible coughing and wheezing aloud during attack  
History of similar attacks  
Family history of allergy

### SIGNS

Expanded chest  
Difficulty forcing air out of lungs  
Prolonged expiration  
Wheezing on expiration  
Fever with associated respiratory tract infection

### PATIENT CARE

- a. Encourage the patient to drink liquids. At least one glass of water or other liquid every hour will help to make the secretions in the lungs thinner and easier to cough up. This is the most important step in treatment.
- b. Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages:

Adults and children 40 kg and over	0.5 cc
Children 20 to 40 kg	0.3 cc
Children 10 kg to 20 kg	0.2 cc
Children 10 kg and under	0.1 cc

Record the time when you give the patient epinephrine. Also record the patient's pulse



and respiratory rates. If wheezing continues, you may repeat the dosage of epinephrine at twenty minute intervals for a total of three injections. Do not give the patient any more epinephrine if his pulse exceeds 150 beats per minute.

- c. Give the patient oral aminophylline (theophylline ethylenediamine compound) every six hours. Use the following dosages:

Adults	200 mg
Children	
20 to 40 kg	100 mg
10 to 20 kg	50 mg

- d. If you find signs of a bacterial infection in the throat or lungs, use an antibiotic. Avoid penicillin or ampicillin. Use tetracycline or erythromycin. Treat the patient for six days. See Guide for Calculating Antibiotic Dosages.
- e. Refer the patient to a hospital if the wheezing does not decrease after twelve to twenty-four hours or if it becomes worse. Patients with severe asthma can quickly become dehydrated and exhausted. Then the condition is much more difficult to correct, even in a hospital.

## PLEURAL EFFUSION

### SYMPTOMS

Usually without symptoms

Sharp chest pain when inflammation is present

Shortness of breath if effusion is very large or accompanied by pain

History of tuberculosis, pneumonia, congestive heart failure, or chest trauma

### SIGNS

Reduced movement of the affected side of chest

Uneven expansion of chest

On percussion, flat sound over the effusion

On auscultation, no breath sounds over the effusion

### PATIENT CARE

If you suspect that the patient has a pleural effusion, refer him to a hospital for further evaluation and treatment.

## TUBERCULOSIS

### SYMPTOMS

Usually without symptoms, especially in children

Cough, with yellow or green sputum

Fever in late afternoon and sweating at night

Loss of appetite and loss of weight

Blood in sputum

Tiredness

### SIGNS

Often no signs

Requires X-ray or sputum examination

Weight loss

Chronic cough

In children, enlarged, painless lymph glands in the neck

### PATIENT CARE

#### *Tuberculosis of the lungs*

- Make the diagnosis of tuberculosis properly. If you suspect tuberculosis, collect the sputum to obtain a smear, or refer the patient for an X-ray examination. See Patient Care Procedure for Collection of Sputum from a Suspected Tuberculosis Patient. Do not start treatment until the diagnosis is confirmed.
- Patients often have difficulty completing a course of treatment for tuberculosis successfully. Help your patient to understand the importance of taking the drugs regularly for the full length of time. Many patients require treatment for twenty-four months or more. Treat the patients with the drugs that the Tuberculosis Control Program in your country recommends. Many drug combinations have been used in the treatment of tuberculosis.

Frequently, streptomycin is given intramuscularly for the first eight to twelve weeks after diagnosis of pulmonary tuberculosis. The drug must be given intramuscularly. This treatment requires the patient's daily attendance at the clinic.

At the same time, the patient is usually started on two additional drugs by mouth. Most frequently, isoniazid is one of the two drugs. Paraminosalicylic acid or thiacetazone may be the other drug. See the Formulary for drug dosages and side effects.



Review the toxic side effects of these drugs. Warn the patient about the side effects. Tell him to return to see you if he suffers severe or continued side effects. You can temporarily reduce the amount of the drug, or you can stop the drug and start giving the patient another drug. These are two alternatives. Too often, the patient simply stops taking the drug and stops coming to the clinic.

Many other drugs can be used in the treatment of tuberculosis. However, they are most frequently used when the recommended drugs have failed. The secondary drugs are far more expensive and only slightly more effective.

- c. Urge the patient to eat a nutritious diet.
- d. Follow the progress of the patient on a monthly basis.

Weigh the patient monthly. Continued weight loss is a sign that the disease is not under control and is worsening.

Ask about blood in sputum; severity of coughing; fever; and appetite.

Ask the patient to bring the drug that he still has at home each time he visits you. Calculate the number of pills that he should have taken and the number he has actually taken. This will help you determine how regularly the patient is taking the drug.

Ask the patient about any new symptoms since he began treatment. Check to see if the drug that he is taking could be causing the new symptoms.

- e. Examine all members of the patient's family for tuberculosis. If they have symptoms that suggest tuberculosis, refer them for a chest X-ray or sputum examination.

### *Tuberculosis elsewhere in the body*

If you suspect that the patient may have tuberculosis elsewhere in the body, refer him to a hospital for evaluation.

### PREVENTION

- a. Examine all the close contacts of the patient at least every three months. Refer any contact with suspected tuberculosis for a chest X-ray or sputum examination.
- b. BCG vaccine is sometimes recommended for children who have not been infected.

Follow national guidelines for its use.

- c. Keep the possibility of tuberculosis in your mind each time you see a new patient. Tuberculosis is difficult to detect unless you suspect that it is present.

## Heart Problems

### CONGESTIVE HEART FAILURE

#### SYMPTOMS

Shortness of breath with exercise or during the night

Swelling of ankles in afternoon and evening

Possible swelling of the lower back

Cough with thin, clear sputum

Tiredness and weakness

#### SIGNS

Pitting edema of the ankles or lower part of back

Enlarged neck veins

Increased pulse rate while at rest

Shortness of breath during exertion

Rales at the base of the lungs

#### PATIENT CARE

If the patient has mild congestive heart failure, follow these steps.

- a. Start the patient on 25 mg of oral hydrochlorothiazide twice a day. If he has swelling of his ankles, the drug may help to reduce the swelling. Try to reduce the drug to 25 mg every other day as his condition improves.
- b. Tell him to stop using any salt in his food, during preparation of the food or at the table.
- c. Teach the patient and his family about congestive heart failure. Emphasize the following points.

The condition cannot be cured. But the patient can live comfortably for many years if he rests each day and follows the recommended treatment.

The patient must take the drug regularly and for the rest of his life. If he stops taking



the drug, the condition will return and become worse.

Salt makes the condition worse. The patient should not eat any salt. He should prepare his food without salt.

The patient may rest more comfortably at night if he sleeps with his head raised on two or three pillows. Raising his head will prevent water from collecting in his lungs and making him short of breath.

- d. Refer the patient to a hospital for further evaluation as soon as possible.
- e. Follow the patient regularly in the clinic. At each visit, ask if the patient has swelling of his ankles, shortness of breath while working or at night, cough, weakness, or chest pain.

Examine the patient and record his weight, the presence or absence of edema, signs of fluid in his lungs, heart rate, heart rhythm, other signs of congestive heart failure, and blood pressure.

If the patient is taking digitalis, check for signs of too little or too much of this drug. Signs of too little digitalis include pulse rate over ninety beats per minute and fluid collecting in the body. Signs of too much digitalis include pulse rate under sixty beats per minute, nausea, vomiting, headache, and irregular heart beat.

If the patient is taking hydrochlorothiazide, he may lose potassium from his body. Low levels of potassium in the body cause muscle weakness and worsening of the heart failure. Encourage the patient to eat foods that are rich in potassium. These foods include whole wheat, soybeans, beans, peas, lentils, peanuts, seaweed, bananas, and green vegetables.

For severe heart failure, transfer the patient to a hospital as quickly as possible so that the heart failure can be treated and brought under control.

#### PREVENTION

- a. Routinely check the blood pressure of adults you see in the clinic. Early detection and treatment of high blood pressure will delay the development of heart failure.
- b. Look for signs of severe anemia. Anemia can also lead to heart failure.

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## RHEUMATIC HEART DISEASE

### SYMPTOMS

Cough  
Shortness of breath on exertion  
Swollen ankles  
Patient between twenty and forty years old  
Rarely history of rheumatic fever

### SIGNS

Loud heart murmur  
Pitting edema of the ankles  
Enlarged neck veins  
Shortness of breath  
Increased pulse rate  
Rales

### PATIENT CARE

- a. If you suspect that the patient has rheumatic heart disease, refer him to a hospital for further evaluation.
- b. If the patient has signs of congestive heart failure, begin treatment as outlined in the Patient Care Guide for Congestive Heart Failure.

### PREVENTION

Prevent rheumatic heart disease by preventing rheumatic fever. A child who has had an attack of rheumatic fever is very likely to get a second attack. You can reduce this risk by giving the child a 1200 mg intramuscular injection of benzathine penicillin once a month. You may substitute either 250 mg of penicillin V daily or 1 g of sulfadiazine daily. You should continue treatment until the patient is twenty years of age. You can also help prevent rheumatic heart disease by diagnosing and treating bacterial tonsillitis.

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## ANGINA PECTORIS

### SYMPTOMS

Squeezing substernal pain with exertion or emotional stress  
Sudden onset of pain, which lasts one to two minutes  
Pain that radiates into shoulders, jaw, or along left arm  
Repeated attacks of pain



**SIGNS**

No abnormal signs of heart disease

**PATIENT CARE**

- Tell the patient to stop whatever he is doing when he feels the chest pain beginning. Tell him to slip one 0.4 mg glyceryl trinitrate (nitroglycerin) pill under his tongue and let it dissolve there. Tell him to take a second pill if the pain continues for more than one to two minutes. Tell him to take no more than three pills during an attack. Tell him to carry the pills with him at all times.
- The patient can reduce the severity of attacks in several ways.  
Tell him to eat small meals more frequently.  
Tell him to rest after mealtime to allow his body to digest the food before he goes back to work.  
Tell the patient to stop smoking. Smoking causes the blood vessels to become smaller. This makes the problem worse.  
If the patient is overweight, tell him to lose weight. Extra body weight puts increased strain on the heart.
- Check the patient's blood pressure regularly, and test him for diabetes. Both high blood pressure and diabetes put extra strain on the heart. If the patient has either of these conditions, you must treat it.
- Refer the patient to a hospital. A doctor should confirm your diagnosis of angina pectoris.

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**MYOCARDIAL INFARCTION****SYMPTOMS**

Severe substernal pain  
Feeling that pain is crushing the chest  
Associated shortness of breath  
Often, history of angina pectoris  
Pain that lasts minutes or hours and does not respond to glyceryl trinitrate or rest

**SIGNS**

Cyanosis, paleness  
Restlessness, fright, great pain  
Trouble breathing  
Possible signs of shock: cool, pale, damp skin;

weak, fast pulse; blood pressure less than 90/60

Weak, muffled, or irregular heartbeat

**PATIENT CARE**

- Relieve the patient's pain. This is most important. Give the patient 100 mg of pethidine IM. Repeat the medication after two to three hours if the patient continues to have pain. Alternatively, use 10 mg of morphine sulfate IM. Morphine is more powerful than pethidine.
- Transfer the patient to a hospital. Position him so that he is partially sitting, with his head and shoulders raised above the rest of his body. This position will help to prevent shortness of breath.
- If the patient has cold, clammy skin, rapid pulse, blood pressure below 90/60, or other signs of shock, keep him warm. However, do not give him intravenous fluids. The heart failure would become worse as a result of such treatment.

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**HYPERTENSION****SYMPTOMS**

No symptoms until late in course of disease  
Very rarely comes with presenting complaint  
Possible history of headache, nosebleeds, or light-headedness  
Family history of hypertension, heart disease, or stroke  
Most frequently in adults over thirty years of age

**SIGNS**

High blood pressure

BLOOD PRESSURE		SEVERITY
Systolic	Diastolic	
140 to 160	90 to 104	Mild
160 to 180	105 to 125	Moderate
Over 180	Over 125	Severe

**PATIENT CARE**

- Tell the patient about his disease. Hypertension may require treatment for the rest of the patient's life. He must understand the dangers of the disease. He must also become convinced that treatment will prevent these



problems. Otherwise, he will not cooperate in caring for himself.

- b. If the patient is overweight, encourage him to reduce his weight. Explain to the patient that weight reduction often helps to bring high blood pressure down.
- c. Urge the patient to stop using salt during food preparation and at the table. Explain that salt reduction may help to bring the high blood pressure down.
- d. If the patient's blood pressure is in the severe range, refer him to a hospital immediately. Weight reduction and salt reduction alone will not be effective. The treatment for severe hypertension requires more powerful drugs.
- e. If the patient's high blood pressure is in the moderate range, start giving 25 mg of hydrochlorothiazide daily. If the pressure remains elevated after one month, increase the dosage to 50 mg daily. If the pressure is still in the moderate range after another month, refer the patient to a hospital.
- f. If the patient's blood pressure is in the mild range at first, see the patient weekly for three months. If his blood pressure remains high after three months, start the patient on 25 mg of hydrochlorothiazide daily. In-

crease the dosage if necessary.

- g. Whenever you use hydrochlorothiazide in patient care, encourage the patient to eat foods that have extra potassium. Hydrochlorothiazide washes potassium out of the body. Without enough potassium, the patient will become very weak, and the medication will stop working. Foods with high levels of potassium include peas, lentils, soybeans, beans, peanuts, green vegetables, bananas.
- h. Follow the patient with high blood pressure on a weekly basis for the first three months, and monthly thereafter. At each visit, weigh the patient and take his blood pressure. Ask the patient to relax for at least fifteen minutes before you record his pressure. Encourage him to eliminate salt from his diet. If he is overweight, help him to reduce his body weight.

#### PREVENTION

Most people with hypertension do not know that they have a problem. If hypertension is a problem in your community, plan a screening and follow-up program. Also, take the blood pressure of every adult patient who comes to the health center.

# GASTROINTESTINAL

## Diarrhea, Vomiting, or Mild Abdominal Pain

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### AMEBIASIS

#### SYMPTOMS

Mild to severe diarrhea  
Blood and mucus in stool  
Severe abdominal cramps and urge to move bowels  
Slight fever

#### SIGNS

Mild tenderness in lower abdomen  
Dehydration associated with severe diarrhea

#### PATIENT CARE

- Examine the patient for signs of dehydration. If he appears dry, treat him for dehydration immediately.
- If the patient has any tenderness over his liver, jaundice, or evidence of an acute abdomen, refer him to a hospital immediately.
- Instruct the patient to take 250 mg tablets of metronidazole three times a day for seven days. Use the following dosages:

Adults	500 mg (2 tablets) three times a day
Children	
15 kg or more	250 mg (1 tablet) three times a day
10 to 15 kg	187.5 mg (3/4 tablet) three times a day
6 to 10 kg	125 mg (1/2 tablet) three times a day
Under 6 kg	62.5 mg (1/4 tablet) three times a day

- Advise the patient to take the drug with his meals. Taking the drug with meals will reduce the irritation that the drug causes. Warn the patient not to drink any alcohol while he is taking the drug. Drinking alcohol while taking the drug can cause severe cramps, nausea, vomiting, and headaches.
- If the patient does not improve after a course of treatment, refer him to a hospital for further evaluation and treatment.

#### PREVENTION

- Teach families to wash their hands after going to the latrine and before cooking and eating.
- Urge families to dispose of stool in a latrine so that it cannot contaminate water or food.
- Tell them to wash raw vegetables and fruit carefully before eating them.
- Teach them to boil water before they drink it and to protect their water supply from contamination.

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### GIARDIASIS

#### SYMPTOMS

Discomfort in upper abdomen  
Gas and abdominal cramps  
Diarrhea, often mild, over many months  
No fever  
No blood or mucus in stool

#### SIGNS

Weight loss

#### PATIENT CARE

- Examine the patient for signs of dehydration. If he is dehydrated, treat him for this condition immediately.
- Instruct the patient to take metronidazole for seven days. Use the following dosages:

Adults and children	
30 kg and over	250 mg three times a day
Children	
15 to 30 kg	125 mg three times a day
Under 15 kg	125 mg twice a day
- When the patient is taking metronidazole, warn him to avoid drinking alcohol. Advise him to take the drug at meal times.
- Mepacrine is as effective as metronidazole. Use the following dosages:

Adults and children	
30 kg and over	100 mg three times a day for seven days



## Children

15 to 30 kg	50 mg three times a day for seven days
Under 15 kg	50 mg twice a day for seven days

- e. If the patient has not improved after one month, or if the problem recurs, give him a second course of treatment.
- f. If the patient does not improve after a second course of treatment, refer him to a hospital for further evaluation.

## PREVENTION

- a. Urge families to dispose of stool in latrines to prevent contamination of soil and water.
- b. Urge people to wash their hands after using the latrine and before cooking and eating.
- c. Urge people to wash all raw fruits and vegetables before eating them.

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**PEPTIC ULCER**

## SYMPTOMS

Gnawing, aching, or burning sensation in upper abdomen  
 Frequently, history of ulcers  
 Pain that often starts thirty to sixty minutes after meal  
 Pain in early part of night  
 Black, tar-like stools when ulcer bleeds

## SIGNS

Mild tenderness on deep palpation below the sternum

## PATIENT CARE

- a. Help the patient to deal with the problems in his life that are causing tension. Support him in his efforts to cope with these problems. Increased stress is the major factor in this illness.
- b. Help the patient to avoid foods that he knows will cause stomach irritation. These often include alcohol, spicy foods, coffee, tea, and cola drinks. Urge the patient to eat small meals of mild, nutritious foods rather than large, spicy meals.
- c. Warn the patient that aspirin will irritate his stomach. Oral cortisone also makes stomach ulcers worse.

- d. Tell the patient to take antacid tablets or liquid about one hour after each meal. Tell him to take additional tablets or liquid whenever he develops pain in his abdomen. Tell him to take enough liquid or tablets to relieve his discomfort. This may be three to four teaspoons of liquid or an equal number of tablets. Advise the patient that antacids can cause diarrhea or constipation. Magnesium products cause a laxative effect. Aluminum hydroxide may cause constipation.
- e. Refer the patient to a hospital immediately if he develops any complications. Complications include intestinal obstruction, signs of internal bleeding, or an acute abdomen.

## PREVENTION

The best ways to prevent peptic ulcers are to reduce stress and to avoid spicy foods and acid drinks.

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**GASTROENTERITIS***Caused by Food Poisoning*

## SYMPTOMS

Vomiting and colicky pain  
 Symptoms that start within one-half day of eating contaminated food  
 Other people who ate same food also became ill  
 Possibly some diarrhea

## SIGNS

Dehydration with severe vomiting

## PATIENT CARE

Treat the patient for dehydration. Give him small amounts of water, juice, or other liquid every fifteen minutes. If vomiting is severe, give him intravenous fluids. Follow the Patient Care Procedure for Starting an Intravenous Solution in a Peripheral Vein.

*Caused by Viruses and Bacteria*

## SYMPTOMS

Severe, watery diarrhea  
 Vomiting  
 With severe bacterial infection, blood and mucus in the stool

Abdominal cramps

SIGNS

- Dehydration with severe diarrhea
- Tenderness on palpation of abdomen
- No guarding or rebound tenderness
- With severe bacterial infection, high fever with blood and mucus in stool

PATIENT CARE

- Treat the patient for dehydration. Give him small amounts of water, juice, or other liquid every fifteen minutes. If vomiting is severe, give him intravenous fluids. Follow the Patient Care Procedure for Starting an Intravenous Solution in a Peripheral Vein.
- If the patient has blood and mucus in his stool, together with severe cramps, fever, and chills, give him a course of oral ampicillin. See Guide for Calculating Antibiotic Dosages.  
Continue the drug only until the symptoms become less severe and the patient's temperature returns towards normal. Do not use ampicillin for more than five days.
- For severe vomiting, give adults 25 to 50 mg of chlorpromazine IM every four hours. Give children approximately 1 mg per kg body weight every four to six hours.
- If the patient does not improve after five days, refer him to a hospital for further evaluation and treatment.

ing meal on two successive days. Use the following dosages:

	ELIXIR (150 mg/ 1 ml)
Adults	30 ml
Children	
20 kg and over	20 ml
15 to 20 kg	15 ml
10 to 15 kg	10 ml
Under 10 kg	5 to 10 ml

Piperazine may also be effective when given as a single dose. If the symptoms return after one month, repeat the treatment.

- Warn the patient that this drug may cause some nausea, vomiting, and diarrhea. However, these side effects should not prevent him from completing the treatment.
- Tell the patient to take magnesium sulfate the following morning in order to eliminate the worms. Give an adult three teaspoons of crystals, and tell him to mix them in a glass of water. Give a child one to two teaspoons of crystals in half a glass of water. Warn the patient that the solution will taste very bitter.
- An alternative drug, pyrantel pamoate, is effective against both hookworm and roundworm. You may treat the patient with a single dose of pyrantel, 10 mg per kilogram of body weight for roundworm. Use double this dosage for a mixed infection of hookworm and roundworm.

## Intestinal Worms

### ROUNDWORMS

SYMPTOMS

- Vomited or coughed up worm or passed worm in stool
- Possible fever, coughing, or wheezing
- Possible colicky pain in abdomen
- History of worm problem

SIGNS

- Respiratory symptoms of mild fever, cough, and wheezing
- Often no signs of disease

PATIENT CARE

- Give the patient piperazine after his even-

	ROUND- WORM ALONE	ROUND- WORM PLUS HOOKWORM
Adults and children 40 kg and over	10 ml (500 mg)	20 ml (1 g)
Children 30 to 40 kg	7.5 ml (375 mg)	15 ml (750 mg)
12 to 30 kg	5 ml (250 mg)	10 ml (500 mg)
Under 12 kg	2.5 ml (125 mg)	5 ml (250 mg)

Pyrantel pamoate may be more effective if given daily for two to three days.

- Pyrantel pamoate causes nausea, headache, dizziness, and rashes.
- Bephenium hydroxynaphthoate kills both roundworms and hookworms. You may



give the patient a single dose. Use the following dosages:

Adults and children 20 kg and over	5 g
Children Under 20 kg	2.5 g

Tell the patient to take the drug before eating or drinking anything. He may eat one hour after taking the drug.

#### PREVENTION

Teach the patient and his family to prevent roundworm infection by using a latrine.

Teach them to protect drinking water from contamination, and to boil all water before drinking it. Teach them to wash their hands after using the latrine and before eating.

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## PINWORMS

### SYMPTOMS

Restlessness at night

Scratches around the anus

Itching and discharge from the vagina

Tiny worms around anus at night

### SIGNS

Scratch marks around the anus

### PATIENT CARE

- a. Treat pinworms with a single dose of pyrantel pamoate, unless the patient is a pregnant woman or a child less than two years old. Use the following dosages:

Adults and children 40 kg and over	10 ml (500 mg)
Children 30 to 40 kg	7.5 ml (375 mg)
12 to 30 kg	5 ml (250 mg)
Under 12 kg	2.5 ml (125 mg)

- b. Piperazine is effective in the treatment of pinworms. However, the patient must take the drug twice daily for seven days. Use the following dosages:

Adults and children 30 kg and over	7 ml (1 g) twice a day
Children 20 to 30 kg	5 ml (750 mg) twice a day
10 to 20 kg	2.5 ml (375 mg) twice a day

- c. Warn the patient that the drug may cause

some nausea. However, this side effect should not prevent him from taking the full dosage.

- d. Treat all members of the family at the same time. Unless you treat all members, the infection will occur again within the family.
- e. If the patient has severe itching around his anus, teach the parent how to put petrolatum ointment (Vaseline) around the edges of the anus. This will help to prevent itching when the female worm crawls around the edge of the anus.
- f. Teach the mother to cut the children's fingernails very short. Eggs collect under the fingernails and reinfect the patient and his family. Teach her how important clean fingernails are in preventing pinworm infections.

#### PREVENTION

- a. Always treat the entire family. Otherwise, one or two family members will reinfect the other members of the family.
- b. At the time of treatment, tell the family to wash bed sheets and clothing carefully to remove the pinworm eggs. Tell them to wash the bedsheets and clothing in boiling water, and dry them in the sun.
- c. Tell family members to keep their fingernails short and clean.
- d. Encourage family members to wash their hands carefully after using the latrine and before eating. Good hygiene is most important in preventing pinworm infection.

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## TAPEWORMS

### SYMPTOMS

Worm segments in stool

Patient eats undercooked beef, pork, or fish

### SIGNS

With heavy infection in children, weight loss and malnutrition

Otherwise, no findings except worm segments in stool

### PATIENT CARE

- a. Give the patient niclosamide. Tell him to eat no food on the evening before treatment.

Early on the following morning, give him the tablets. Tell him to chew them thoroughly and swallow them with some water. Use the following dosages:

Adults	2 g
Children	
26 kg and over	1.5 g
12 to 26 kg	1.0 g
12 kg and under	0.5 g

- b. Niclosamide may cause some nausea and abdominal pain. Warn your patient of these side effects.
- c. Two hours after he has taken niclosamide, give the patient a strong purge. Use magnesium sulfate. For an adult, dissolve three teaspoons in at least eight ounces of cool water. For a child, use one to two teaspoons.
- d. Tell the patient that he may eat two hours after taking the niclosamide.

#### PREVENTION

The patient can prevent tapeworm infections by cooking all beef, pork, and fish thoroughly before eating it.

## HOOKWORMS

#### SYMPTOMS

- Itchy rash on hands or feet
- Small blisters called ground itch on hands or feet
- Dry cough and wheezing
- History of hookworm infection in the community

#### SIGNS

- Pale mucous membranes and conjunctivae because of severe anemia

#### PATIENT CARE

- a. If the patient has any signs of anemia, give him ferrous sulfate for three months. Use the following dosages:

Adults and children		
over 12 years of age	Tablets	300 mg three times a day
Children		
6 to 12 years of age	Tablets	300 mg twice a day

1 to 6 years of age	Oral suspension	5 ml three times a day
under 1 year of age	Oral suspension	2 ml three times a day

Tell the family to give the patient the drug at mealtime. The iron is less likely to cause stomach irritation when the stomach has food in it.

- b. If the patient may also have roundworm infection, treat him with a drug that kills both hookworms and roundworms. A 250 mg/5 ml oral suspension of pyrantel pamoate is effective against both kinds of worms. Use the following dosages:

Adults and children	
40 kg and over	20 ml (1 g)
Children	
30 kg to 40 kg	15 ml (750 mg)
15 to 30 kg	10 ml (500 mg)
Under 15 kg	5 ml (250 mg)

- c. Bephenium hydroxynaphthoate kills both roundworms and hookworms. You may give the patient a single dose. Use the following dosages:

Adults and children	
20 kg and over	5 g
Children under 20 kg	2.5 g

Tell the patient to take the medicine before eating or drinking anything. He may eat one hour after taking the medicine.

- d. If the patient may also have roundworms, but you cannot give him a drug that kills both hookworms and roundworms, treat the roundworms first with piperazine. See Patient Care Guide for Roundworms.
- e. Tetrachlorethylene (TCE) is effective against hookworms. Tell the patient to eat only a light meal the night before you treat him with TCE. Tell him not to drink alcohol for at least twenty-four hours before or after treatment. Use the following dosages:

Adults and children	
40 kg and over	5.0 ml
Children	
36 to 40 kg	4.5 ml
31 to 36 kg	4.0 ml
26 to 31 kg	3.5 ml
20 to 26 kg	3.0 ml
13 to 20 kg	2.0 ml
5 to 13 kg	1.0 ml



- f. TCE causes nausea, vomiting, dizziness, and a feeling of being drunk. Warn the patient to expect these feelings. Keep him lying down for at least four hours after he takes the drug.

If the patient is severely anemic, treat the anemia for at least two weeks before you give the patient TCE.

#### PREVENTION

Teach families that they can prevent hookworm by using a latrine. The hookworms enter the body through the skin of the feet. So wearing shoes will also help to prevent hookworm infection from any human stool on the ground.

## Liver Diseases

### VIRAL HEPATITIS

#### SYMPTOMS

Loss of appetite, nausea, and vomiting  
Yellow skin or eyes  
Pain in right upper abdomen  
Dark urine

#### SIGNS

Jaundice  
Smooth and tender liver edge

#### PATIENT CARE

- Strongly encourage the patient to rest in bed until the signs and symptoms of hepatitis are gone. Tell him to rest until he is free of jaundice and fever, and the tenderness over his liver is gone. Tell the patient to rest in bed until he is feeling hungry and eating well. If signs and symptoms return, tell the patient to start resting in bed again.
- If the patient is vomiting severely, and he is unable to hold down fluids, start an intravenous infusion. Give him up to 2500 ml of 5% dextrose in 1/2 normal saline daily. This will prevent dehydration.
- Help the patient to eat a nutritious diet. Tell him to avoid greasy or fatty foods until his recovery is complete.
- Warn the patient that alcohol will damage his liver while he is recovering from hepatis.

tis. Tell him to avoid alcohol for at least two months after he has recovered.

- Refer the patient to a hospital if he becomes extremely ill, unconscious, or very jaundiced.

#### PREVENTION

The hepatitis virus spreads easily through water. Boil or chlorinate all drinking water to destroy the hepatitis virus. The virus also spreads through saliva. Tell the patient to use only his own eating utensils. Teach the family to dispose of the patient's stool so that it cannot contaminate the garden or the water supply.

### CIRRHOSIS

#### SYMPTOMS

Yellow skin or eyes  
Swollen abdomen  
Weakness  
Poor appetite, with nausea and vomiting  
Long history of drinking alcohol heavily and eating a very poor diet

#### SIGNS

Looks chronically ill  
Muscle wasting  
Jaundice  
Enlarged abdomen, with fluid  
Enlarged liver, firm, but not tender

#### PATIENT CARE

- If the patient drinks alcohol, the cirrhosis will rapidly worsen. When the patient is an alcoholic, you must treat that condition successfully in order to prolong his life.
- Patients with cirrhosis often have very poor appetites, especially when they consume alcohol. Help the patient to eat a nutritious diet.
- If possible, give the patient one capsule a day of Vitamin B complex.

#### PREVENTION

Many patients with cirrhosis are chronic alcoholics. Prevention of cirrhosis in these cases depends largely upon the prevention and treatment of alcoholism.



## Acute Abdomen

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### ACUTE ABDOMEN

#### SYMPTOMS

Severe abdominal pain  
History of recent trauma to abdomen that may indicate internal bleeding

#### SIGNS

Patient looks very ill  
Possible fever and signs of shock  
Swelling of the abdomen  
Abdominal tenderness with guarding  
Rebound tenderness  
Abnormal percussion note, especially high-pitched sound  
Increased, decreased, or absent bowel sounds

#### PATIENT CARE

- a. A patient with signs of an abdominal emergency quickly develops shock. Start an intravenous infusion and give the patient normal saline solution or Ringer's lactate solution. Begin the IV before you transfer the patient to a hospital. Keep the infusion running during the transfer.
- b. Do not give the patient anything by mouth. Giving him anything by mouth will often complicate the problem. The intravenous infusion will help to prevent dehydration. Never give a patient with acute abdomen a laxative, even if he complains of constipation. A laxative makes the bowels more active. The increased activity may cause a perforation or other complication.
- c. Arrange for transportation to transfer the patient to a hospital as quickly as possible.
- d. If you suspect an infection, give the patient intramuscular antibiotics while you are waiting for his transfer to the hospital. Give him 1200 mg of benzylpenicillin G IM. Be sure he is not allergic to penicillin. Also give him 500 mg of streptomycin IM.
- e. If the patient is in severe pain, and he will not reach a hospital within four hours, give him pethidine to relieve the pain. However, these drugs will make diagnosis of the patient's problem more difficult when he reaches a hospital. Give adults 100 mg of

pethidine IM. Give children 1 mg per kg of body weight.

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### ACUTE APPENDICITIS

#### SYMPTOMS

Severe abdominal pain  
History of colicky pain around the naval  
Pain that worsens and moves to the right lower quarter of abdomen

#### SIGNS

In early stages, mild fever only, up to 38°C to 38.5°C  
Rebound tenderness

#### PATIENT CARE

- a. When you suspect that the patient has acute appendicitis, start an intravenous infusion. Give him normal saline solution or Ringer's lactate. This will help to prevent dehydration and shock.
- b. Transfer the patient to a hospital as quickly as possible. Keep him in the shock position, with his feet slightly elevated. Keep the patient warm. Keep the IV running.
- c. If you suspect a ruptured appendix, give the patient antibiotics while waiting for his transfer. If he is not allergic to penicillin, give him 1200 mg of benzylpenicillin G IM. Also give him 500 mg of streptomycin IM.
- d. Give a pain medication only when the hospital is more than four hours away. Give adults 100 mg of pethidine IM. Give children 1 mg per kg of body weight.

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### INTESTINAL BLOCK

#### SYMPTOMS

Severe crampy abdominal pain that comes in spasms  
Vomiting  
Constipation or complete absence of stools

#### SIGNS

Patient looks very ill  
Shock and dehydration  
Possible surgical scars on abdomen



High-pitched percussion note  
 Increased or absent bowel sounds  
 Guarding or rebound tenderness  
 Possible hernia in the groin  
 Green-brown vomit that smells like stool

#### PATIENT CARE

- a. Start an intravenous infusion. Use normal saline solution or Ringer's lactate. Keep the IV running during transfer of the patient to a hospital.
- b. Keep the patient in the shock position. Place his feet slightly higher than his abdomen. Keep him warm. If he shows signs of dehydration, treat him for this condition. See Patient Care Procedure for Starting an Intravenous Solution in a Peripheral Vein.
- c. Transfer the patient to a hospital as quickly as possible. He will require careful observation and, probably, surgery.
- d. Pass a nasogastric tube into the patient's stomach and remove as much fluid as possible. Leave the tube in place. Empty the stomach every fifteen minutes. This will help to prevent vomiting and make the patient more comfortable. See Patient Care Procedure for Passing a Nasogastric Tube.
- e. If the patient has guarding or rebound tenderness, he may have an infection within the abdominal cavity. Give the patient antibiotics intramuscularly. Give him 1200 mg of benzylpenicillin G IM and 500 mg of streptomycin IM.
- f. If the patient is having severe pain, give him 100 mg of pethidine IM. If the patient is a child, give him 1 mg per kg of body weight. You may repeat this dosage in four hours.

## Anal Problems

### HEMORRHOIDS

#### SYMPTOMS

Pain in the anus  
 Pain that worsens when passing stool  
 Possible bright red blood on stool  
 History of constipation  
 Pregnancy

#### SIGNS

Large, bluish blood vessels under skin around anus  
 Possible hard clot of blood inside vessel

#### PATIENT CARE

- a. If the patient has a hard clot of blood under the skin near his anus, removal of the clot with a small incision will quickly relieve the pain. Refer the patient to a hospital for this procedure.
- b. Advise the patient to soak the hemorrhoids in warm water for thirty minutes at least three times a day. Tell him to sit in a small tub of warm water.
- c. If constipation is associated with the hemorrhoids, urge the patient to drink an extra one to two liters of water a day. Tell him that he should move his bowels at least once a day. Tell him to take 15 to 30 ml of mineral oil once a day, to soften his bowel movement. Tell the patient to stop taking mineral oil after the bowel movements have become soft and the hemorrhoids have improved.
- d. Tell the patient to insert a lignocaine and hydrocortisone suppository into his rectum two to three times a day, after bowel movements. Rectal suppositories will help to relieve discomfort.
- e. If the hemorrhoids continue to bother the patient, refer him to a hospital for further care. Sometimes the hemorrhoids can be removed surgically.

### ANAL FISSURES

#### SYMPTOMS

Severe pain when passing stool  
 History of severe constipation

#### SIGNS

Deep crack in membrane at margin of anus

#### PATIENT CARE

- a. Tell the patient to sit in a tub of warm water for thirty minutes, three times a day. Warm soaks will soothe and heal the fissure.
- b. The stool must be soft or the patient will have severe pain when he moves his bowels.

Tell the patient to take 15 to 30 ml of mineral oil daily. Tell him to drink extra water so that his stools will become soft. Warn the patient not to continue taking mineral oil after the fissure has healed.

c. Tell the patient to use a lignocaine and hy-

drocortisone rectal suppository after bowel movements. This suppository will provide some relief.

d. If the fissure continues to bleed or remain painful, refer the patient to a hospital. A doctor may have to remove the fissure.



# GENITOURINARY

## Urinary Tract Infections and Stones

### URINARY TRACT INFECTION

#### SYMPTOMS

- Women affected more often than men
- Burning pain while passing urine
- Must pass urine more often than normal
- History of urinary tract infection
- Cloudy urine
- In children, crying when passing urine
- In children, history of bedwetting, dripping urine, wetting pants, fever, or vomiting
- High fever and chills
- One-sided backache

#### SIGNS

- Tenderness on palpation over bladder
- In men, possible enlarged prostate gland
- Tenderness on palpation or percussion over kidney
- Blood and pus in urine

#### PATIENT CARE

- a. Encourage the patient to increase the flow of urine by drinking an extra glass of fluid every one to two hours.
- b. Treat the patient either with a 500 mg/5 ml mixture of sulfadimidine, or with 500 mg sulfadimidine tablets, or with 500 mg sulfadiazine tablets. Give him a large initial dose. Then tell him to take the medication every six hours for ten days. Use the following dosages:

500 mg/5 ml mixture of sulfadimidine		
	INITIAL DOSE	THEN EVERY SIX HOURS FOR TEN DAYS
Adults and children		
40 kg and over	30 ml	10 ml
Children		
30 to 40 kg	20 ml	10 ml
20 to 30 kg	15 ml	7.5 ml
10 to 20 kg	10 ml	5 ml
Under 10 kg	5 ml	2.5 ml

### 500 mg sulfadimidine or sulfadiazine tablets

	INITIAL DOSE	THEN EVERY SIX HOURS FOR TEN DAYS
Adults and children		
40 kg and over	3 g (6 tablets)	1 g (2 tablets)
Children		
30 to 40 kg	2 g (4 tablets)	1 g (2 tablets)
20 to 30 kg	1.5 g (3 tablets)	750 mg (1-1/2 tablets)
10 to 20 kg	1 g (2 tablets)	500 mg (1 tablet)
Under 10 kg	500 mg (1 tablet)	250 mg (1/2 tablet)

- c. Tell the patient to return to see you immediately if he develops a rash, itching, or pain in his joints. If these reactions occur, tell him to stop taking sulfadimidine or sulfadiazine. Start giving him tetracycline. See Guide for Calculating Antibiotic Dosages.
- d. If the signs and symptoms of urinary tract infection continue for as long as one week after you start treating the patient, refer him to a hospital.
- e. If the patient has tenderness over the kidneys, or blood and pus in the urine, refer him to a hospital. These are the signs and symptoms of upper urinary tract infection.

#### PREVENTION

Good personal hygiene may reduce the risk of urinary tract infection. Teach women and girls to clean themselves carefully after going to the toilet. Teach them to wash from front to back so that bacteria from the stool do not get into the urethra.

### STONES IN THE URINARY TRACT

#### SYMPTOMS

Sudden onset of severe colicky pain in the

loin

Pain that radiates across the flank to the lower abdomen or groin

Pain in the penis or vagina

Possible blood in the urine

Possible nausea, vomiting, and abdominal swelling

#### SIGNS

Possible shock because of severity of pain

Tenderness in flank or loin

#### PATIENT CARE

- a. Urge the patient to drink a very large volume of water every day. Three to four liters of fluid daily over a period of months may help to flush out the stones. Tell the patient to drink water before going to bed and once more during the night.
- b. Give the patient 100 mg of pethidine IM every four hours for pain. Relieving pain will reduce muscle spasms caused by the stone. If you relieve the patient's muscle spasms, the stone can move through the urinary tract.
- c. Refer the patient to a hospital if severe pain continues after you have given him pethidine. If the pethidine relieves the pain, observe the patient for forty-eight hours. The stone may pass down the urinary tract when the patient drinks a lot of fluid. If the pain stops, the stone has moved to another part of the urinary tract or out through the urethra.
- d. Some urinary tract stones require surgical removal.

## Kidney Problems

### NEPHRITIS

#### SYMPTOMS

Passing red or brown urine

Possibly passing less urine than usual

Swelling of the eyelids in the morning

Possible recent history of bacterial infection

Possible recent history of snake bite, drug reaction, or chemical poisoning

#### SIGNS

Blood and protein in the urine

Puffiness of the eyelids

Increased blood pressure

#### PATIENT CARE

Refer patients with suspected nephritis to a hospital.

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### NEPHROTIC SYNDROME

#### SYMPTOMS

Patient most commonly a child younger than three

Swollen eyes in the morning

Swelling of arms, legs, and face

Possible recent history of upper respiratory infection

#### SIGNS

Pitting edema of the legs and arms

Swelling around the eyes

Pleural effusion

Ascites, fluid in the abdomen

Protein in the urine

#### PATIENT CARE

- a. If the patient appears to have a nephrotic syndrome, refer him to a hospital.
- b. While he is under treatment, you must encourage the patient to eat body-building foods. The patient with nephrotic syndrome loses large amounts of protein in his urine. His body must replace the protein by building new proteins from the food that he eats.
- c. Encourage the family to prepare foods for the patient without adding any salt. Explain to the family that salt holds water in the body. It will make the swelling worse.
- d. Look for signs of infection. Pneumonia occurs frequently in patients with nephrotic syndrome. If evidence of infection appears, treat the patient with penicillin or erythromycin. Follow the Patient Care Guide for Pneumonia.



## Problems of the Prostate and Scrotum

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### ENLARGED PROSTATE GLAND

#### SYMPTOMS

Dribbling and wetting at end of urination  
 Gets up at night to pass urine  
 Urine stream that becomes weak and small  
 Later, constant feeling that bladder is full  
 Finally, inability to pass urine  
 Possible development of urinary tract infection

#### SIGNS

Firm, enlarged prostate gland  
 Weak urinary stream  
 Possible enlarged kidneys  
 Later, enlarged bladder

#### PATIENT CARE

- When the signs and symptoms of enlarged prostate first develop, explain the problem to the patient. Tell him to return to see you every six to twelve months so that you can check the progress of the condition.
- If the patient develops a urinary tract infection, refer him to a hospital.
- When the patient develops problems of wetting himself and straining to start the urine stream, refer him to a hospital.
- If the patient has an enlarged bladder and is unable to pass his urine, you must catheterize him. See Patient Care Procedure for Catheterizing the Bladder of a Male. Never remove more than 1000 cc of urine at one time. When the bladder has been very dilated, removing more than 1000 cc of urine at one time can cause shock. After decompressing the patient's bladder, transfer him to a hospital.

#### SIGNS

Very tender, enlarged prostate gland that is soft on palpation  
 Discharge from penis on palpation of prostate gland

#### PATIENT CARE

##### *Acute Infection*

- Encourage the patient to remain in bed. Give him aspirin every four hours. Advise him to drink an extra amount of fluid.
- Give the patient a course of tetracycline. Tell him to take 500 mg every six hours for two weeks.

##### *Chronic Infection*

- Give the patient a course of tetracycline. However, antibiotic treatment may not be effective because the drug does not reach the bacteria within the gland.
- Massage the prostate gland firmly and vigorously each week. This will help to force pus out of small pockets within the gland.

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## SCROTAL SWELLING

#### SYMPTOMS

Swelling of scrotum  
 Swelling that comes and goes or gradually becomes worse  
 Possible pain

#### SIGNS

Enlarged scrotum

#### PATIENT CARE

Refer men with pain or swelling of the scrotum to a hospital.

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## Problems Spread by Sexual Contact

### GONORRHEA

#### SYMPTOMS

History of sexual intercourse within last two weeks  
 In man  
 Burning on urination

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### PROSTATITIS

#### SYMPTOMS

Pain at the base of the penis  
 Burning on urination  
 Increased frequency of urination  
 Possible gonorrhea or urinary tract infection

White discharge from penis, later becoming thick and yellow

In woman

Often no symptoms  
Vaginal discharge  
Irritation in the vulva  
Pain during intercourse

#### SIGNS

In man

Discharge from penis

In woman

Inflamed cervix

#### PATIENT CARE

- a. If the patient is not allergic to penicillin, give him 2.4 g of procaine penicillin G IM in each buttock, a total of 4.8 g. At the same time, give him 1 g of oral probenecid to prolong the effect of the penicillin. Use the same dosage for both men and women.
- b. If the patient is allergic to penicillin, treat him with 500 mg of oral tetracycline every six hours for ten days.
- c. Urge the patient to avoid sexual intercourse until he has completed treatment. Ask the patient to bring his sexual partners for treatment. Treat partners even if they have no symptoms. Gonorrhea often causes no symptoms in females.
- d. Refer patients to a hospital if they develop signs or symptoms of complications.

#### PREVENTION

- a. Always treat the partners of anyone who has gonorrhea. Otherwise, the problem will recur. Subsequent infections are more difficult to cure.
- b. Advise the patient always to use a condom during intercourse with a person who may be infected. When using a condom, the male should withdraw promptly after having an

ejaculation and wash himself carefully around the genitals.

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## SYPHILIS

#### SYMPTOMS

Small, painless sore on penis, external genitals, vagina, breast, or lip  
Painless, enlarged lymph glands in groin  
History of sexual contact

#### SIGNS

Chancres, painless sores with edges rolled in  
Enlarged lymph glands in groin, which become firm and painless  
Several weeks to months later, development of generalized rash  
Lesions that may be flat, raised, or papular  
Rash that often occurs on palms of hands and soles of feet

#### PATIENT CARE

- a. Give the patient 1800 mg of benzathine penicillin IM.
- b. Locate and treat the patient's sexual partners. After the initial stage, patients have no symptoms until many years later. Treatment then is of little value.
- c. If you suspect that the patient has advanced syphilis, refer him to a hospital.

#### PREVENTION

After the early symptoms and signs of syphilis have disappeared, the disease progresses inside the body for many years. Only a blood test will detect its presence during this period of time. Tell community members about the importance of treating all sexual partners, whether they have symptoms or not.



# SKIN

## Skin Problems Spread by Personal Contact

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### IMPETIGO

#### SYMPTOMS

Patient usually a child  
Sores on face, arms, or legs  
Itching of the sores  
History of sores getting worse and spreading  
Possible fever  
History of sores in other family members

#### SIGNS

Small vesicles or pustules with crusts on them  
Tender or painful lesions  
Possible fever

#### PATIENT CARE

- a. Teach the family how to soak the skin lesions. See Patient Care Procedure for Using Soaks To Treat Skin Lesions. The soaks will help to dry up the skin lesions. Tell the family to continue this treatment until the crusts are gone and the skin is dry and clean.
- b. If the patient has a fever or a large number of skin lesions, give the patient an antibiotic. If he is not allergic to penicillin, give him penicillin V tablets or ampicillin. If the patient is allergic to penicillin, give him erythromycin tablets. Continue treatment for five to seven days, until the lesions have cleared up. See Guide for Calculating Antibiotic Dosages.
- c. Teach the family to use soap and water daily to wash the skin. Teach them to keep their fingernails short and clean. Warn them that scratching spreads the infection rapidly.

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### SCABIES

#### SYMPTOMS

Severe itching, usually between fingers and on wrists  
Itching also around waist, armpits, buttocks, and genitals

Itching that becomes worse at night  
History of other family members with same complaints

#### SIGNS

Lesions between fingers, on wrists, buttocks, genitals, and in armpits  
Tiny burrows hidden by crusts and pustules of impetigo  
Scratch marks

#### PATIENT CARE

- a. Scabies spreads very easily from one person to another. If one family member has scabies, treat everyone in the family.
- b. If the patient has impetigo from scratching the skin, treat this problem with warm soaks until crusts are gone.
- c. 25% benzyl benzoate lotion and 1% gamma benzene hexachloride cream and shampoo are all effective drugs in the treatment of scabies. Give the family 75 ml to 100 ml of cream, lotion, or shampoo for each family member.
- d. Tell the family to begin treating scabies by having each family member take a bath with soap and warm water. Tell them to scrub the skin with a stiff brush. This scrubbing will open up the burrows where the insects hide.
- e. Tell them to apply the drug to all areas of the skin below the neck. Warn them not to get any of the drug in the eyes. Tell them not to wash for twenty-four hours after applying the drug. Washing will remove the drug before it has a chance to kill the scabies insects.
- f. Tell them to apply the drug to all areas of the body again after twenty-four hours. Tell them to leave the drug on the skin for another twenty-four hours. Tell them to wash the body with soap and water after this forty-eight hour treatment.
- g. Tell the family to carefully wash all clothing and bedding, and put in the sun to dry. This procedure will destroy the scabies insects that may be in the clothing or bedding.

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## LICE

### SYMPTOMS

Itching of scalp, trunk, or pubic area  
History of other members of the family  
having similar complaints

### SIGNS

White specks, eggs of lice, called nits, at the roots of the hairs  
Visible lice measuring 1 mm to 4 mm  
Scratch marks and secondary bacterial infection

### PATIENT CARE

- When one family member has lice, you must treat everyone in the family. Lice are very contagious.
- Treat only the areas of the skin that are infested.
- Apply 25% benzyl benzoate lotion or 1% gamma benzene hexachloride cream or shampoo to the affected areas of the body. Leave the drug on for twenty-four hours. When using shampoo, apply it to the affected area and lather it in thoroughly for five minutes. Then wash it out, dry the hair, and comb the hair carefully to remove the nits.
- Repeat the treatment with benzyl benzoate after one week. Repeat the treatment with gamma benzene hexachloride two or three times at four day intervals, if necessary.
- The lice live in the seams of clothing. Tell the family to wash all clothing thoroughly and then iron the clothing. The ironing will kill the lice and the nits. If ironing is not possible, tell the family to apply 10% DDT powder to the clothing.
- Tell the family to expose all bedding to sunlight.
- If the patient has impetigo in addition to the lice, treat the impetigo with warm soaks four times a day.

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## RINGWORM

### SYMPTOMS

Small, flat, circular, itchy patches on skin  
Patches on skin that gradually become larger

### SIGNS

On scalp  
Round, gray, bald patches  
On exposed skin  
Red, round lesions made up of very small vesicles, with central clearing and scaly edges  
Wet, itchy, red lesions in groin and armpits, and on breasts

### PATIENT CARE

- Encourage the patient to keep his skin clean and dry. The ringworm fungus grows easily in moisture. Dust talcum powder onto the skin to help keep it dry.
- Give the patient Whitfield's ointment to apply to the skin lesions twice a day for six weeks. Teach him to rub the ointment thoroughly into the skin each time he applies it.
- If the skin lesions are wet and red, show the patient how to use wet soaks on the lesions. Use cool wet soaks rather than warm soaks. Cool wet soaks will soothe and dry the skin lesions. Then the patient can apply the ointment.
- Lesions that do not clear up after six weeks and lesions that involve the nails, will respond to griseofulvin. The drug is effective but expensive. You must treat the patient with griseofulvin for at least three weeks. Use the following dosages:

Adults	500 mg once a day
Children	
6 to 12 years of age	250 mg once a day
Under 6 years of age	125 mg once a day

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## TINEA VERSICOLOR

### SYMPTOMS

Light colored patches of skin, mostly on arms, chest, and back  
Skin patches that may itch  
Condition that becomes worse at one time of year than another

### SIGNS

Many small, round, scaly macules  
Lesions that are lighter than surrounding skin, or are brown or red



**PATIENT CARE**

- a. Show the patient how to apply 2.5% selenium sulfide lotion to the skin. Rub it vigorously into the skin and leave it for fifteen minutes. Then wash it off. Tell the patient to reapply the lotion once a day for four days, and then twice a week for two months.
- b. If the condition returns, repeat the treatment.

## Skin Problems Not Usually Spread by Personal Contact

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**CELLULITIS****SYMPTOMS**

History of a cut or injury  
Swollen and painful area of skin

**SIGNS**

Fever and chills  
Swollen, red, warm, and tender area of skin  
Nearby lymph glands usually swollen and tender  
No fluctuance

**PATIENT CARE**

- a. Tell the patient to apply warm soaks to the infected area of the skin. Soak the area with warm water for at least twenty minutes. Repeat the soaks four times a day until the lesion has cleared up.
- b. Give the patient an antibiotic. If he is not allergic to penicillin, give him oral penicillin V. If the patient is allergic to penicillin, give him oral erythromycin. See Guide for Calculating Antibiotic Dosages.
- c. Give the patient 600 mg of aspirin every four hours to relieve pain and discomfort.
- d. See the patient each day. If the patient shows no signs of improvement after forty-eight hours, refer him to a hospital.

## BOILS AND ABSCESSES

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**SYMPTOMS**

Small, red, painful lump that rapidly became bigger

**SIGNS****Boils**

Lesion raised above the skin  
Red, warm skin surrounding lesion  
Soft area in center of swelling  
Nearby lymph glands swollen and tender  
Yellow point in middle of boil, indicating pus

**Abscesses**

Larger than boils, but with the same signs

**PATIENT CARE**

- a. Abscesses may be a sign of diabetes. Use indicator paper to test the patient's urine for sugar. Follow the instructions that come with the indicator paper.
- b. Teach the patient how to apply warm soaks to the skin lesions. He must continue this treatment for at least twenty minutes four times a day until the center of the lesion becomes soft. Sometimes the abscess will burst by itself. If it does not, you must incise it. Follow the Patient Care Procedure for Opening and Draining Boils and Abscesses.
- c. Tell the patient to continue to treat the lesion with warm soaks until the incision stops draining. Tell him to keep the wound protected from dirt with a dry dressing between soaks.
- d. Give the patient oral penicillin V only if the boil is on the face or if the patient has a fever. If the patient is allergic to penicillin, give him oral erythromycin. See Guide for Calculating Antibiotic Dosages.

## TROPICAL ULCER

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**SYMPTOMS**

History of minor injury to foot or lower leg  
Injury that developed into vesicle that quickly became ulcer  
Ulcer that has a bad smell

**SIGNS**

Ulcer that has raised edges  
Swollen, discolored skin surrounding ulcer  
Patient poorly nourished child or young adult

**PATIENT CARE**

- a. Insist that the patient get complete rest. Tell him to keep the affected limb slightly raised above the level of his body while he is lying down. Keeping the affected limb raised will help to prevent swelling.
- b. Tell the patient to apply warm, salt water soaks to the skin ulcer. Tell him to add one teaspoon of salt to one liter of boiled water. Tell him to soak the ulcer for thirty minutes four times a day.
- c. Tell him that after he has soaked the ulcer, he should swab it with a 3% solution of hydrogen peroxide. This will help to clean the ulcer and promote healing.
- d. Tell the patient to cover the ulcer with a piece of clean gauze between soaks.
- e. Give the patient 500 mg of streptomycin IM twice a day for ten days. Also give the patient 600 mg of procaine penicillin G IM daily for ten days. Do not give penicillin if the patient is allergic to it. Substitute erythromycin. See Guide for Calculating Antibiotic Dosages.
- f. When the surface of the ulcer is clean and new skin begins to grow in from the edges, cover the ulcer with petrolatum ointment and clean gauze. Then wrap the affected limb with an elastic bandage. Keep the bandage in place for up to ten days at a time unless the ulcer begins to drain again. Tell the patient to remain off of his feet until the ulcer is completely healed. Tell the patient that if he begins to walk too soon, the ulcer will not heal.
- g. If the ulcer has not healed after five weeks, refer the patient to a hospital. Tropical ulcers are very difficult to cure. Early, vigorous treatment is very important.
- h. Encourage the patient to eat more body building and protective foods. Patients who are poorly nourished are much more likely to suffer from tropical ulcer than are well-nourished individuals.

**PREVENTION**

Treat any small cut or injury on the lower legs immediately. Tell the patient to wash any injury with soap and water and to cover the injury.

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**HERPES SIMPLEX****SYMPTOMS**

One or more small, painful sores near mouth or nose or on genitals  
 Probable history of recent fever, injury, or digestive problem  
 History of similar sores

**SIGNS**

Group of small vesicles  
 Red skin surrounding vesicles  
 Crusts on vesicles  
 Possible swelling and tenderness of nearby lymph glands

**PATIENT CARE**

- a. No treatment is available that will increase the rate of healing of herpes skin lesions.
- b. If you see pus and crusting from a bacterial infection, tell the patient to apply warm soaks to the skin lesion three or four times a day. These soaks will help to clear up the bacterial infection more rapidly.

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**Skin Problems Never Spread by Personal Contact**

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**ECZEMA****SYMPTOMS**

Infant and young child  
 Red, wet skin lesions, often on cheeks or forehead  
 Older child and adult  
 Dry, itchy areas, most often in front of elbows, behind knees

**SIGNS**

Infant and young child  
 Small vesicles and crusts  
 Weepy, wet lesions  
 Scratch marks, crusts, secondary bacterial infection  
 Older child and adult  
 Thickened, dry skin with scratch marks  
 Oozing, if infection is present



PATIENT CARE

- a. If the skin lesions are wet and red, teach the patient to apply cold soaks to the skin for thirty minutes four times a day until the skin has become dry.
- b. Apply a 1 % hydrocortisone ointment to the skin lesions twice daily. Use only a small amount of ointment, and rub it thoroughly into the skin. Treat only small areas of skin with this ointment. Apply the ointment only if the skin is no longer wet or weepy.
- c. Encourage the patient to avoid the use of soap. Tell him to wash once a day only, and only with water. Water will rapidly dry out the skin.
- d. Teach the patient to apply petrolatum ointment to the moist skin after bathing, to trap water in the skin.
- e. Scratching makes the skin lesions worse. When the patient is a young child, show the mother how to cut the child's fingernails and keep them clean and short. Give the child an oral antihistamine drug such as 2 mg of chlorpheniramine at bedtime to help reduce the itching.

ONCHOCERCIASIS

SYMPTOMS

- Severe, red, itching rash over one quarter of body or across the back for several months
- Difficulty with vision
- Lumps under skin
- Onchocerciasis present in the community and region

SIGNS

- Rash in one quarter of body or across the back
- Small, round, papular lesions
- Thickening of the skin
- Swollen lymph glands in the groin
- Lumps under the skin
- Evidence of eye disease
- In later stages, loss of skin pigment

PATIENT CARE

- a. If the patient complains of pain in his eyes or difficulty with his vision, refer him to a hospital for treatment.

- b. In other patients, begin giving betamethasone. Give the patient 0.6 mg three times a day for one week, followed by 0.6 mg daily for two additional weeks.
- c. Twenty-four hours after starting the betamethasone tablets, start treatment with diethylcarbamazine. Begin treatment with one third of the full dosage. Increase the daily dosage gradually over four to six days. Continue treatment for three weeks. If the patient has severe allergic reactions, increase the drug dosage more slowly.

WEIGHT OF PATIENT	INITIAL DOSE	FULL DOSE
40 kg and over	100 mg daily	100 mg three times a day
20 to 40 kg	50 mg daily	50 mg three times a day
10 to 20 kg	25 mg daily	25 mg three times a day
5 to 10 kg	12.5 mg daily	12.5 mg three times a day

- d. You may use an antihistamine to control some of the allergic symptoms. Use chlorpheniramine either orally or IM depending on the severity of the allergic symptoms. Follow the dosage guidelines in the Formulary. Begin antihistamine treatment before you give the first dose of diethylcarbamazine.

PREVENTION

The community must eliminate the breeding sites of the black fly. Find out how you can participate in control of the black fly.

CONTACT DERMATITIS

SYMPTOMS

- Burning or itching rash
- History of new substance in contact with patient's skin, such as soap, lotions, oils, metals, detergents, medicines, drugs, or other chemicals

SIGNS

- Macules, papules, or vesicles that weep and ooze
- Crusts from scratching and secondary infection
- Red skin surrounding lesions

## PATIENT CARE

- Help the patient to identify the substance that caused his reaction. Tell him to avoid further contact with that substance.
- If the lesions are red and wet, teach the patient how to apply cold soaks three to four times a day. These will help to dry up the skin lesions and remove the crusts.
- Tell the patient to apply a drying lotion such as calamine lotion between soaks.
- If the skin lesions are red, dry, and itchy, tell the patient to apply 1% hydrocortisone ointment several times a day. To treat milder inflammation, apply calamine lotion.

## SKIN REACTIONS TO DRUGS

## SYMPTOMS

Itchy rash over any part of body

Fever, headache

History of having taken medicine in the last two weeks

## SIGNS

Skin lesions of any kind

Often, flat or raised rash that itches

## PATIENT CARE

- Tell the patient to immediately stop taking the drug that you suspect has caused the reaction.
- Encourage the patient to drink a lot of fluid. This fluid will help the body to get rid of the drug more quickly.
- If the patient has severe itching, give him 4 mg of oral chlorpheniramine every three or four hours. Give children one to five years of age 1 to 2 mg of oral chlorpheniramine

three times a day. When the reaction is very severe, give the patient 10 mg of chlorpheniramine IM. Do not exceed 40 mg of chlorpheniramine IM in twenty-four hours. Give children 0.5 mg of chlorpheniramine IM per kg of estimated body weight, up to a maximum dosage of 10 mg.

- If the patient shows signs of anaphylactic shock, carry out the following procedures:

Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.

Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages:

Adults and children	
40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
10 kg and under	0.1 cc

Record the patient's pulse, respiratory rate, and blood pressure every five minutes.

If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.

If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.

If signs of shock continue for more than thirty minutes, transfer the patient to a hospital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

- If the skin develops vesicles and crusts, apply wet soaks three or four times a day to clear up the skin lesions.



# DENTAL, EYES, EARS, NOSE, AND THROAT

## Eye Problems

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### STY

#### SYMPTOMS

Pain in eye  
Often past history of similar problems

#### SIGNS

Tender red lump on margin of eyelid

#### PATIENT CARE

- Show the patient and his family how to apply warm compresses to the sty. Boil one liter of water and add a teaspoon of salt. When the water cools sufficiently, soak a piece of clean cloth and apply it to the affected eye. Keep the cloth wet and warm by dipping it into the warm salt water every few minutes for up to half an hour. Tell the patient and his family to repeat this procedure four times a day until the swelling goes away.
- Tell the patient to apply 1% tetracycline eye ointment to his eyes four times a day after the warm compress treatment. Show him how to apply the ointment. See Patient Care Procedure for Application of Eye Ointment or Eyedrops.
- If the sty continues to become larger after forty-eight hours, refer the patient to a hospital.

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## CONJUNCTIVITIS

#### SYMPTOMS

Burning and redness of one or both eyes  
Possible upper respiratory infection or other viral infection such as measles

#### SIGNS

Newborn  
If patient is newborn, suspect gonococcal conjunctivitis

#### Viral infection

Watery discharge  
Red conjunctivae

#### Bacterial infection

Pussy discharge  
Red conjunctivae  
Swelling of eyelids  
Eyelids stuck together

#### PATIENT CARE

- If the discharge from the eye is clear and watery, and the patient has an upper respiratory infection, do not treat the conjunctivitis with an antibiotic.
- Examine the cornea very carefully under a good light. If you notice any roughness or ulceration, apply 1% tetracycline eye ointment and a patch. Refer the patient to a hospital immediately.
- If you see no roughness or ulceration, clean the eye and apply 1% tetracycline eye ointment. See Patient Care Procedures for Cleaning a Patient's Eyelids and for Application of Eye Ointment or Eyedrops.
- Show the family how to clean the eyes and apply the eye ointment. Tell them to carry out this procedure three or four times each day until the conjunctivitis clears up.
- Warn the family that conjunctivitis spreads very easily from one person to another. Tell them that each person must use his own wash water and towel when he washes himself.

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## TRACHOMA

#### SYMPTOMS

Itching, redness, and discharge in both eyes  
Symptoms often present for at least a month

#### SIGNS

At early stage, inflammation of upper eyelids  
Red, rough conjunctivae  
Later, gray membrane on upper edge of cornea  
Scarring of cornea and ulceration that lead to blindness

## PATIENT CARE

- a. When you have a patient with evidence of early infection, teach him how to apply 1% tetracycline eye ointment. Tell him that he must apply the ointment three times a day for three weeks.
- b. When the conjunctivae are more than mildly inflamed, you must treat the patient with eye ointment. You must also instruct him to take an antibiotic by mouth. If he is over eight years of age, give him tetracycline. See Guide for Calculating Antibiotic Dosages. Continue the treatment for four weeks. As an alternative, treat the patient with an oral sulfonamide. Treat the patient either with a 500 mg/5 ml mixture of sulfadimidine, or with 500 mg sulfadimidine tablets, or with 500 mg sulfadiazine tablets. Give him a large initial dose. Then tell him to take the medication every six hours for ten days. Use the following dosages:

## 500 mg/5 ml mixture of sulfadimidine

	INITIAL DOSE	THEN EVERY SIX HOURS FOR TEN DAYS
Adults and children 40 kg and over	30 ml	10 ml
Children		
30 to 40 kg	20 ml	10 ml
20 to 30 kg	15 ml	7.5 ml
10 to 20 kg	10 ml	5 ml
Under 10 kg	5 ml	2.5 ml

500 mg sulfadimidine or sulfadiazine  
tablets

	INITIAL DOSE	THEN EVERY SIX HOURS FOR TEN DAYS
Adults and children 40 kg and over	3 g (6 tablets)	1 g (2 tablets)
Children		
30 to 40 kg	2 g (4 tablets)	1 g (2 tablets)
20 to 30 kg	1.5 g (3 tablets)	750 mg (1-1/2 tablets)
10 to 20 kg	1 g (2 tablets)	500 mg (1 tablet)
Under 10 kg	500 mg (1 tablet)	250 mg (1/2 tablet)

The patient taking an oral sulfonamide must drink extra water during his treatment.

- c. If you detect any ulceration or roughness on

the cornea, refer the patient to a hospital for treatment.

## PREVENTION AND CONTROL OF TRACHOMA

- a. Trachoma spreads easily when people use the same wash towels and when they allow flies to land on their faces. Teach the community that good hygiene, cleanliness, and fly control will help to prevent trachoma.
- b. When you find a person with trachoma, look at all members of his family. If you suspect that other family members also have trachoma, treat them, too.

## CATARACTS

## SYMPTOMS

Blurred vision that gradually gets worse over months or years

No pain in eyes

## SIGNS

Lens that appears whitish, completely white, or gray when you shine light into eye

## PATIENT CARE

When you suspect that the patient has a cataract, refer him to a hospital. If he can still see light and some movement, surgery may improve his vision.

## VITAMIN A DEFICIENCY

## SYMPTOMS

Poor vision in the evening and at night

Clumsiness because of poor vision

## SIGNS

Shiny surfaces of eye that become dull

Dry conjunctivae

Small gray plaques called Bitot's spots on outer margins of conjunctivae

Poor nourishment

## PATIENT CARE

- a. When the only symptom of Vitamin A deficiency is nightblindness, urge the family to feed the child foods that contain Vitamin A. Explain the relationship between eating



these foods and preventing eye disease. Foods that are rich in Vitamin A include dark green leafy vegetables, yellow vegetables, milk, eggs, and liver.

- b. If you note any dryness of the conjunctivae, or any Bitot's spots, give the patient a 25,000 unit capsule of Vitamin A by mouth.
- c. If Vitamin A deficiency is likely to occur again because the parents do not give the child more foods that contain Vitamin A, give the child 100,000 units of Vitamin A every six months until he reaches school age.
- d. If you notice any signs of damage to the cornea, give the patient 100,000 units of water-soluble Vitamin A IM. Give the child 100,000 units by mouth the next day. Patch the child's eyes and refer him to a hospital as quickly as possible.
- e. Always give children you treat for malnutrition 100,000 units of Vitamin A every six months.

#### PREVENTION

Effective community education can prevent eye disease caused by Vitamin A deficiency. Families must learn to grow and feed to their children dark green and yellow vegetables that are rich in Vitamin A.

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### FOREIGN BODY IN THE EYE

#### SYMPTOMS

Possible visible object in patient's eye  
Pain that worsens when patient blinks  
Pain that worsens in bright light

#### SIGNS

Usually one eye involved  
Red conjunctiva with tearing  
Foreign body visible on careful inspection

#### PATIENT CARE

- a. Follow the Patient Care Procedure for Locating and Removing a Foreign Body from the Eye.
- b. If you do not see any injury to the cornea, apply 1% tetracycline eye ointment. Cover the eye with a patch. Tell the patient to remove the patch in the morning. Also tell the patient to return if pain and redness continue in the eye.

- c. If you see any damage to the patient's cornea, patch both eyes and transfer the patient to a hospital. If you cannot send the patient to a hospital immediately, apply 1% tetracycline ointment to the eye. Patch both eyes. Reapply the ointment every six hours and keep the eyes patched until the cornea is healed and the eye appears normal. You must transfer the patient to a hospital as soon as possible.

#### PREVENTION

People who work in certain occupations must wear protective glasses. Whenever you discover men and women who are exposed to conditions that endanger their eyes, urge them to protect their eyes. Occupations such as stone cutting, welding, and metal work cause eye hazards.

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### CUTS AND ULCERS IN THE CORNEA

#### SYMPTOMS

Blurry vision  
Severe pain in eye  
History of trauma to the eye or infection in the eye

#### SIGNS

Tearing or discharge from eye  
White or gray spot or line on the cornea

#### PATIENT CARE

- a. Transfer patients with cuts or ulcers on their cornea to a hospital. Patch both eyes before transfer.
- b. If the patient cannot immediately go to the hospital, apply 1% tetracycline ointment. Tape an eye patch or sterile gauze pad over the eye. Reapply the eye ointment three times a day. Apply a clean eye pad after each application. Treat the patient daily until all signs of the cut or ulcer on the cornea have cleared up. Give the patient aspirin every four hours to ease pain. You must transfer the patient to the hospital as soon as possible.

#### PREVENTION

Encourage people who work in occupations that may endanger their eyes to wear protective glasses.

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## EYE EMERGENCIES

### SYMPTOMS

Severe pain in one or both eyes  
Loss of vision in one or both eyes  
Sudden onset of pain or loss of vision

### SIGNS

Decreased vision in eye  
Possible redness around iris  
Possible irregular or different sized pupils  
Possible very small or very large pupils  
Pupils that may not react to light  
Possible clouded cornea

### PATIENT CARE

Refer the patient with an emergency eye condition to a hospital immediately. Delay will cause loss of vision.

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## Dental and Mouth Problems

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### CANKER SORES

#### SYMPTOMS

Painful sores inside mouth  
Probable history of canker sores

#### SIGNS

Flat, white ulcers with red edges on mucous membranes of mouth  
Probable presence of several sores

#### PATIENT CARE

No treatment is available to hasten the rate of healing of canker sores. Tell the patient to avoid foods that irritate the ulcer. These include sour foods, chocolate, and nuts. Tell him to rinse his mouth with salt water after meals to keep the ulcers clean.

---

### GINGIVITIS

#### SYMPTOMS

Painful or bleeding gums  
Probable presence of other dental problems

#### SIGNS

Red, swollen gums  
Space between teeth and gums  
Food particles and tartar between teeth and gums  
Hard plaque on teeth

#### PATIENT CARE

- Remove the hard plaque from the teeth with a scaling tool.
- Teach the patient how to brush his teeth properly. Ask him to demonstrate this to you.
- Tell the patient to rinse his mouth with a solution of equal parts warm water and 3% hydrogen peroxide. Tell him to rinse after every meal.

#### PREVENTION

Individuals can prevent inflammation of the gums by carefully brushing their teeth each day. You must also scrape off the plaque that builds up on the teeth. If you do not remove the plaque, it will irritate the gums.

---

### ACUTE ULCERATIVE GINGIVITIS

#### SYMPTOMS

Severe pain in the mouth  
Bleeding gums  
Fever  
Difficulty eating

#### SIGNS

Red, swollen, and bleeding gums  
Ulcers on the gums at the teeth  
Plaque and other signs of poor tooth and mouth care  
Ulcers at the edge of the gingiva  
Swollen lymph glands in the neck  
Foul odor

#### PATIENT CARE

- Follow the Patient Care Guide for Gingivitis.
- In addition, give the patient an antibiotic. Give the patient procaine penicillin G IM daily for five days. Alternatively, give him oral penicillin V tablets. If he is allergic to

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penicillin, use erythromycin or tetracycline.  
See Guide for Calculating Antibiotic Dosages.

- c. Swab the patient's gums with a cotton-tipped applicator soaked in 3% hydrogen peroxide. The hydrogen peroxide will help to rid the mouth of dead gum tissue.

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## TOOTH DECAY

### SYMPTOMS

No symptoms until the decay is severe  
Pain when eating hot or cold and sweet or acid foods  
Toothache when the nerve is exposed

### SIGNS

Early, dark spot on the surface of the painful tooth  
Later, decay has destroyed part of the tooth, leaving a hole in the tooth

### PATIENT CARE

- a. If possible, refer the patient to a dentist.
- b. Determine the severity of the decay. Test the nerve by asking the patient if hot, cold, sweet, or acid foods make the tooth hurt. If so, then the nerve is alive.
- c. Tap on the decayed tooth. Look for redness and swelling around the tooth. If tapping on the tooth causes pain, you must not fill the tooth. See Patient Care Guide for Dental Abscess. See Patient Care Procedure for Dental Extraction.
- d. If tapping on a decayed tooth does not cause pain, and the tooth is not aching or throbbing, fill the cavity. Follow the Patient Care Procedure for Temporary Filling.

### PREVENTION

- a. Tell children and their parents how sweet foods and candy cause tooth decay.
- b. Tell parents to brush their teeth daily and to teach their children to brush their teeth daily also.

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## DENTAL ABSCESS

### SYMPTOMS

Severe, continuous pain in one tooth  
Possible fever

### SIGNS

Severe pain when the tooth is tapped  
Tooth may be loose  
Swelling of the gums near the infected tooth  
Swelling of the jaw or the entire side of the face

### PATIENT CARE

- a. If you note swelling near the tooth, you must remove the tooth. However, you must treat the abscess before you remove the tooth.
- b. Give the patient an antibiotic. Procaine penicillin G IM for five days will be effective. Alternatively, give oral penicillin V tablets. If the patient is allergic to penicillin, use erythromycin. See Guide for Calculating Antibiotic Dosages.
- c. Teach the patient how to apply warm compresses to the swollen area. These compresses will ease the pain and promote healing.
- d. Give the patient 600 mg of aspirin every four hours for pain and fever.
- e. When the swelling has subsided, remove the infected tooth. See Patient Care Procedure for Dental Extraction.

### PREVENTION

Prevent dental abscesses by treating tooth decay early.

## Ear, Nose, Sinus, and Throat Problems

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### ACUTE UPPER RESPIRATORY TRACT INFECTION

#### SYMPTOMS

Runny nose  
Dryness, tickling, or pain in the throat  
Mild fever with headache  
Coughing, sneezing, and hoarseness

#### SIGNS

Clear nasal discharge  
Red eyes

Red throat

Tender, swollen lymph glands in the neck

Dry cough

#### PATIENT CARE

- a. Encourage the patient to drink at least one or two extra glasses of fluid between each meal.
- b. Give the patient 600 mg of aspirin every four hours for pain and fever. Give children 60 mg of aspirin for each year of age, up to age ten.
- c. Encourage the patient to rest more than he normally does.
- d. Give the patient a cough expectorant such as glyceryl guaiacolate, and tell him to take one teaspoonful every four hours.
- e. Tell the patient to return if he suddenly develops a high fever after several days of improvement. Tell him to return if his ears start to ache or his throat becomes more painful. These symptoms often indicate that the patient has developed a bacterial infection that requires treatment with an antibiotic.

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## ACUTE OTITIS MEDIA

### SYMPTOMS

Sudden onset of severe pain in one or both ears

Decreased hearing in the infected ear

Possible high fever in infant or young child, with crying for no apparent cause

### SIGNS

High fever

Infant or child irritable, pulls at his ear

Discharge in the ear canal often associated with decreased pain

### PATIENT CARE

- a. Treat the patient with an oral antibiotic. Use ampicillin or penicillin V four times a day for seven days. See Guide for Calculating Antibiotic Dosages.
- b. Teach the patient or his parent how to put 0.25% phenylephrine hydrochloride nose

drops into each nostril three times a day for three or four days.

- c. Give the patient aspirin to control pain and fever. Tell him to take 600 mg of aspirin every four hours. Give children 60 mg of aspirin for each year of age, up to age ten.
- d. If the patient has lost his hearing, or the condition has not improved after one week, refer the patient to a hospital. Also refer patients whose infected ears continue to drain after one week.

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## CHRONIC OTITIS MEDIA

### SYMPTOMS

Foul-smelling, pussy discharge from one or both ears

### SIGNS

Foul-smelling, pussy discharge from the infected ear for more than two weeks

Hearing loss

### PATIENT CARE

- a. Treat the patient with oral penicillin V or ampicillin four times a day for two weeks. Explain the importance of taking the medicine regularly. Patients often do not take the drug regularly, and it is not effective unless they take it four times a day for two weeks. See Guide for Calculating Antibiotic Dosages.
- b. Teach the family how to clean the pus out of the ears. See Patient Care Procedure for Cleaning Pus from a Draining Ear. The patient should dry the ear canal at least three times a day. Ask the patient to demonstrate the technique of cleaning the ear.
- c. If the drainage continues for more than two weeks, or if the patient loses hearing, refer him to a hospital.

### PREVENTION

Chronic otitis media results from improper treatment of acute otitis media. Insist that the patient with acute otitis media take the antibiotic drug as directed. Teach parents not to apply drugs directly to the infected ear.



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## MASTOIDITIS

### SYMPTOMS

Ear pain or pain behind the ear  
Fever and headache  
Often draining pus from the ear

### SIGNS

Recent history of ear infection  
Tenderness in mastoid bone, when tapped  
Warm, red, and swollen mastoid area

### PATIENT CARE

If you note the signs of mastoid bone infection, refer the patient to a hospital. Give him aspirin for pain.

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## EXTERNAL OTITIS

### SYMPTOMS

Pain in ear  
History of swimming in dirty water

### SIGNS

Sharp pain when ear lobe is pulled or pushed  
Scaly, red rash in the ear canal  
Rash possibly wet and weepy  
Swollen ear canal  
Tender, swollen lymph glands below the ear

### PATIENT CARE

- Give the patient aspirin to control his pain and discomfort.
- Teach the family how to gently clean the ear canal with a swab daily to keep the canal clean. See Patient Care Procedure for Cleaning Pus from a Draining Ear.
- When the ear canal is weepy, use warm water soaks to relieve pain and to help dry the ear canal. Teach the mother how to apply wet compresses to the ear. Tell her to apply the wet compresses for thirty minutes four times a day. Teach her to dry the ear canal after applying wet compresses. Tell her to place several drops of 70% alcohol in the ear canal several times a day. The alcohol will help to dry the skin.
- Keep the ear dry. Encourage the patient not to swim until the infection clears up.
- If the patient has fever and swelling of the

lymph glands near his ear, give him an oral antibiotic such as penicillin V or erythromycin for seven days. See Guide for Calculating Antibiotic Dosages.

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## WAX IN THE EARS

### SYMPTOMS

Loss of hearing  
Fullness and discomfort in the ear  
History of cleaning ear with finger, bit of wood, or small instrument

### SIGNS

Dark, wax-like material in the ear canal

### PATIENT CARE

- Soften the wax. Tell the family to place several drops of 3% hydrogen peroxide solution or glycerin baby oil into each ear canal several times a day for a week.
- After the wax has become soft, use a large syringe to gently irrigate the ear canal with warm water.
- Prevent wax from becoming packed into the ear canal. Tell the family that attempting to clean the ear canal often forces the wax down into the canal. Tell them to clean only the outer ear.

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## ACUTE SINUSITIS

### SYMPTOMS

Headache and fever with chills  
Severe pain over sinus

### SIGNS

Thick, pussy discharge from the nose  
Tender sinus, when tapped  
Possible swelling and redness over sinus area

### PATIENT CARE

- Treat the patient with an oral antibiotic four times a day for one week. If the patient is not allergic to penicillin, use penicillin V or ampicillin. Otherwise, use erythromycin or tetracycline. See Guide for Calculating Antibiotic Dosages.

- b. Teach the patient or his parent how to put nose drops such as ephedrine or 0.25% phenylephrine hydrochloride into each nostril three to five times a day for three or four days. Warn the patient not to use the drops for longer than four days. Also warn him that his nose may feel more congested several hours after use of nose drops.
- c. Give the patient aspirin for discomfort and fever. Give adults 600 mg every four hours. Give children 60 mg for each year of age, up to age ten.
- d. Warm compresses applied to the sinus area will help to relieve discomfort. Tell the patient to apply these as often as he desires.

## ACUTE BACTERIAL TONSILLITIS

### SYMPTOMS

Sudden onset of cough, high fever, chills, sore throat, and difficulty swallowing  
Recent history of runny nose, cough, sore throat, aches and pains, fever

### SIGNS

Swollen, red tonsils  
White or yellow exudate on the tonsils  
Tender, swollen lymph glands in the neck

### PATIENT CARE

- a. Encourage the patient to rest in bed for a few days.
- b. Give the patient 600 mg of aspirin every four hours. Give children 60 mg for each year of age, up to ten years of age. If the child's temperature is very high, show the parents how to sponge the child. See Guide for Reducing Fever.
- c. Show the patient how to gargle with warm salt water three or four times a day. Gargling with warm salt water may relieve some throat discomfort.
- d. To treat bacterial tonsillitis, give the patient an oral antibiotic such as penicillin V or ampicillin. Tell him to take the drug four times a day for a full ten days. Alternatively, give him an injection of benzathine penicillin. See Guide for Calculating Antibiotic Dosages.

## FOREIGN BODY IN EARS, NOSE, AND THROAT

### SYMPTOMS

#### Ear

Pain and irritation of the ear canal

#### Nose

Blocking of one nostril  
Pussy, foul-smelling discharge  
Sneezing and pain

#### Throat

Coughing and gagging  
Noisy breathing  
Hoarseness  
Pain in the neck  
Possible history of vomiting while unconscious  
Possible history of eating hastily and choking on food  
In a child, short, hacking cough

### SIGNS

Foreign body visible in the nose, with use of speculum  
Small, foreign body visible in back of the throat, near tonsils, or in pharynx

### PATIENT CARE

- a. Foreign body in the nose  
Use nasal forceps to remove a foreign body in the nose. Use a good light source. Tell the patient to lie down flat on his back. Put the forceps into the nostril and grasp the foreign body. If you cannot remove the foreign body, refer the patient to a hospital.
- b. Foreign body in the ear  
Hold a large ear syringe next to the ear and flush the ear canal with warm water. See Patient Care Procedure for Removing a Foreign Body from an Ear. If you cannot remove the foreign body, refer the patient to a hospital.
- c. Foreign body in the throat  
You may remove a foreign body in the back of the throat with a pair of long forceps. When the airway is blocked, you must attempt to remove the foreign body immediately. Use the emergency measures described in the Patient Care Procedures for Using Back Blows or Using Manual Thrusts to Clear a Person's Blocked Airway.



## NOSEBLEEDS

### SYMPTOMS

Sudden bleeding from one nostril  
Possible history of recent upper respiratory tract infection

### SIGNS

Possible high blood pressure  
Possible signs of shock  
Possible signs of anemia

Ulceration and irritation of the mucous membrane of the nose

### PATIENT CARE

- a. If the patient's nose is bleeding into the back of the throat, refer him to a hospital. This type of bleeding is difficult to stop.
- b. When the blood comes from the nostrils, follow the Patient Care Procedure for Controlling Nosebleeds.

# INFECTIOUS DISEASES

## Infectious Diseases Commonly Spread through the Soil or Water

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### TYPHOID FEVER

#### SYMPTOMS

Fever with headache, weakness, cough, sore throat, or loss of appetite  
Increased fever daily for first week of illness  
Nausea, vomiting, and abdominal pain  
Diarrhea or constipation

#### SIGNS

Step-ladder fever pattern over first week, followed by constant high fever  
Low pulse rate, twenty to forty beats per minute slower than expected for level of body temperature  
Swollen, tender abdomen

#### PATIENT CARE

- If you suspect typhoid fever, transfer the patient to a hospital.
- If you must delay transfer, begin treatment with chloramphenicol in a dosage of 50 to 100 mg per kilogram of body weight daily. Use the following dosages:

Adults and children	
40 kg and over	1000 mg every six hours
Children	
20 to 40 kg	500 mg every six hours
10 to 20 kg	250 mg every six hours
5 to 10 kg	150 mg every six hours

Do not use chloramphenicol in children under two months of age.
- If the patient is dehydrated, encourage him to take oral fluids every two to three hours. Bring his fever down with sponges and aspirin. See Patient Care Guide for Reducing Fever.

#### PREVENTION

- Typhoid fever spreads from one person to another when an infected person contaminates food and water. Teach community members how to protect their drinking water from contamination. Teach them to boil or chlorinate all water during an out-

break of typhoid fever.

- Dispose of the stool from a typhoid patient carefully. Use a latrine that cannot contaminate food or water. Protect the latrine from flies.
- Wash your hands carefully after working with the patient. Teach the patient and his family to wash their hands after using the latrine and before cooking or eating.

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### TETANUS IN CHILDREN AND ADULTS

#### SYMPTOMS

No history of tetanus immunizations  
Cut, wound, or ulcer of the skin within previous two weeks  
Tingling and muscle spasm around cut, wound, or ulcer of the skin  
Tightening of the jaw muscles  
Difficulty opening mouth, chewing, and swallowing

#### SIGNS

Cut, wound, or ulcer of the skin  
Muscle spasms near the wound or in neck or jaw  
Muscle spasm or convulsions that are set off by noises or by touching or moving patient  
Tightening or spasm of face and jaw muscles, causing a rigid smile

#### PATIENT CARE

- Clean the wound or ulcer immediately. The tetanus bacteria produce toxin rapidly. You must cut out all dead or dirty tissue from the wound. Follow Patient Care Procedure for Removing Dead Tissue from a Wound.
- Transfer the patient to a hospital as quickly as possible. He must receive tetanus antitoxin.



- c. Sedate the patient. If he is having muscle spasms, give him diazepam (Valium). Give an adult 10 mg of diazepam, diluted in 10 ml of sterile water for injection, over a ten-minute period every six hours. Give children 1 mg per kg of body weight IV every six hours up to maximum of 10 mg. Inject the diazepam slowly, over a ten minute period.
- d. If the patient has had any convulsions, give him amobarbital in addition to the diazepam. Give adults 200 mg IM every six hours. Give children 5 mg per kg body weight IM every six hours, up to a maximum dose of 150 mg.
- e. Give the patient 720 mg of benzylpenicillin G IM every six hours. A high dose is required to reach the bacteria within the wound. If the patient is allergic to penicillin, use tetracycline or erythromycin. See Guide for Calculating Antibiotic Dosages.

#### PREVENTION

- a. Immunize all infants with a series of four DPT shots. Give the shots at three months, five months, seven months, and eighteen months. Give children a DT booster injection before they start school. Further boosters every ten to fifteen years throughout life will prevent tetanus in individuals who work in occupations, such as farming, that increase the risk of tetanus infections.
- b. Give pregnant women two tetanus toxoid injections, four to six weeks apart, in the latter half of pregnancy. Repeat the tetanus booster with each subsequent pregnancy. This will protect the newborn as well as the mother.
- c. Carefully evaluate patients with any of the following conditions:
  - An infected wound or wound more than twenty-four hours old
  - A puncture wound
  - A skin ulcer with dead tissue or gangrene
  - Recent surgery with unsterile instruments, especially infants who have had circumcisions or the umbilical cord cut with unsterile instruments
  - A recent abortion or miscarriage followed by fever or foul discharge
  - An infant whose mother did not receive tetanus immunization

#### Preventing Tetanus in a Patient With a Wound

WOUND	TETANUS IMMUNIZATION	ACTION
Fresh wound, minor	Active immunization and booster in last ten years	Clean wound and remove dead tissue.
Fresh wound, minor	Active immunization, but no booster or does not remember	Clean wound and remove dead tissue. Give tetanus booster.
Fresh wound, minor	No immunization, or does not remember	Clean wound and remove dead tissue. Start tetanus immunization series.
Old wound, or more serious wound	Active immunization and booster in last ten years	Clean wound and remove dead tissue. Treat with oral penicillin.
Old wound, or more serious wound	Active immunization, but no booster or does not remember	Clean wound and remove dead tissue. Treat with oral penicillin. Give tetanus booster.
Old wound, or more serious wound	No immunization, or does not remember	Clean wound and remove dead tissue. Treat with oral penicillin. Start tetanus immunization series. See patient daily until wound is clean and healing well.

# Infectious Diseases Commonly Spread by Animals or Insects

## RABIES

### SYMPTOMS

- Dog bite or bite from other animal known to carry rabies
- Restlessness, fear, depression

### SIGNS

- Animal bite, possibly healed
- Restlessness, depression, fear
- Later, patient becomes very excitable
- Spasm of throat muscles, with saliva draining from mouth
- Fear of swallowing fluid or food
- Fear of the sight of water because of spasm of throat muscles

### CARE OF ANIMAL BITES

- Animal bites often become infected. They are a source of tetanus infection as well as rabies. You must cleanse the wound by flushing it with a large volume of clean water. Cut out any dead tissue. Follow the Patient Care Procedure for Removing Dead Tissue from a Wound. Do not suture the wound. Put a sterile dressing on the wound. Keep the dressing dry. Change the dressing daily.
- If the wound is more than four hours old when you first see the patient, give the patient 250 mg of oral penicillin V every six hours for five days.
- If the patient has had a tetanus toxoid series and a booster within the last ten years, he is protected against tetanus. However, give him a booster if he has not had a booster in the last ten years. If he has never been immunized, begin a series of immunizations immediately.
- Whenever the patient has been bitten by an animal, attempt to locate the animal and cage it for observation. If the animal remains healthy for at least ten days, the patient is not in danger of developing rabies.
- Transfer the patient to a hospital for anti-rabies treatment in the following situations:  
The animal was killed or escaped

The animal was sick when it bit the patient

The animal becomes sick during the ten-day period of observation

The animal bit the patient on the neck or face

Rabies can develop within ten days when the bite was on the face or neck. You cannot wait to observe the animal. You must transfer the patient to a hospital immediately for anti-rabies injections.

- When the symptoms of rabies appear, the patient will die within a few days. If possible, transfer him to a hospital. Keep him as comfortable as possible.
- Relieve the patient's pain. Use 100 mg of pethidine IM every three to four hours. Sedate the patient with 200 mg of amobarbital IM every six hours.
- Avoid rabies infection. Your patient's saliva contains the rabies virus. It can infect you through cuts or sores on the skin. Wear gloves when you touch the patient, wipe saliva from his mouth, and dispose of his body wastes. Wash your hands with soap and water after any contact with a rabies patient.

### PREVENTION

Killing stray dogs, cats, and other animals that are known to carry rabies will help prevent the spread of rabies. Encourage community members to avoid and report any animal that is acting strangely.

## MALARIA

### SYMPTOMS

- High fever, shaking chills, and headache
- Pattern of fever and chills that recurs every one to four days
- History of malaria in the community or region, or patient from area with history of malaria

### SIGNS

- Pattern of fever and chills
- Weakness
- Anemia
- Jaundice
- Enlarged, tender spleen



PATIENT CARE

- a. Give the patient 250 mg chloroquine phosphate tablets. Because chloroquine is bitter, give it with sugar or honey. Use the following dosages:

	INITIAL DOSE	SIX HOURS LATER	DAILY FOR NEXT FOUR DAYS
Adults and children 40 kg and over	1000 mg	500 mg	500 mg
Children 20 to 40 kg	500 mg	250 mg	250 mg
10 to 20 kg	250 mg	125 mg	125 mg

- b. If the patient vomits less than an hour after swallowing the drug, repeat the dose. If the vomiting is severe, give the patient 65 mg/ml solution of chloroquine phosphate by injection. Give adults intramuscular injection. Give children subcutaneous injection. Use the following dosages:

*Adults:* 5 ml. If the patient cannot take the drug by mouth after six hours, repeat the injection. Repeat every six hours for twenty-four hours, if necessary.

*Children:* 0.25 ml per kg of body weight subcutaneously. Do not give children chloroquine phosphate IM. If the patient is still vomiting after six hours, repeat the subcutaneous injection. Repeat one time only, and only if necessary. Start the child on chloroquine phosphate tablets as quickly as possible.

- c. Encourage the patient to drink as much fluid as possible. The fever and vomiting will dry out his body very rapidly.
- d. If vomiting is very severe, start an intravenous infusion. Give the patient 1000 cc of 5% dextrose in 1/2 normal saline over twelve hours.
- e. Bring down the fever with sponging and aspirin.
- f. Obtain a blood smear for laboratory confirmation of the diagnosis. See Patient Care Procedure for Preparing Blood Smears for Diagnosis of Malaria.
- g. Malaria is an important cause of anemia. Treat the patient for anemia. Give prenatal patients iron tablets with folic acid.

- h. Treat a patient with malignant or cerebral malaria as a medical emergency. If the patient has a very high fever, convulsions or coma, or evidence of shock, transfer him to a hospital as quickly as possible. Begin treatment for shock by starting an intravenous infusion with normal saline or Ringer's lactate.

- i. Before transfer, begin treatment with intravenous quinine dihydrochloride. Use the following dosages:

*Adults:* 600 mg in 500 ml of normal saline given over thirty to sixty minutes. Repeat in twelve hours.

*Children:* 10 mg per kg of body weight in 300 ml of normal saline given over one hour. Repeat in twelve hours.

- j. Bring down the fever with cool sponging. Check the rectal temperature every ten minutes. Stop sponging the patient when the temperature falls below 39°C. Otherwise, the temperature may fall to dangerously low levels.

PREVENTION

- a. Infected mosquitoes spread malaria. Find out what kinds of mosquitoes are responsible for spreading malaria in your area. Work with your community leaders to eliminate the places where these mosquitoes breed.
- b. When insecticide spraying is part of the malaria control program, assist the malaria control team in gaining the full cooperation of the community. In order for spraying to be effective, the malaria control team must spray every home.
- c. Teach community members the importance of preventing mosquito bites. Measures such as sleeping under a mosquito net and wearing long pants after dusk will reduce the spread of malaria within the community.
- d. Where malaria is not resistant to chloroquine phosphate tablets, a weekly dose can protect people from the disease. Use the following dosages:

Adults	500 mg
Children	
Three to ten years of age	250 mg
Under three years of age	125 mg



- e. When you encounter patients with fever of unknown cause, or suspected malaria, obtain a blood smear. See Patient Care Procedure for Preparing Blood Smears for Diagnosis of Malaria. The malaria control program uses these blood smears to determine the extent of malaria in the community.

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## LOUSE-BORNE TYPHUS

### SYMPTOMS

Cold or flu symptoms for two to three days  
Sudden onset of severe headache, high fever, and chills  
Red rash on the abdomen, which spreads rapidly  
Often, more than one patient with similar illness

### SIGNS

High, constant fever  
Bright red face  
Red eyes  
Flat, red rash that develops on abdomen and spreads, becoming like many small bruises  
Confusion, delirium

### PATIENT CARE

- a. If you suspect typhus, refer the patient to a hospital immediately.
- b. Notify your supervisor. Typhus often occurs as an epidemic. You must take control measures to protect the community.
- c. Tetracycline and chloramphenicol are effective drugs in treatment of typhus. Give the patient 500 mg of oral tetracycline or chloramphenicol every six hours. The patient must continue to take the drug for three days after his temperature has returned to normal. For children, see Guide for Calculating Antibiotic Dosages.
- d. Eliminate the lice from the patient and his family. First wash the patient with soap and water, and instruct the family members to wash themselves. Then apply 1% gamma benzene hexachloride cream. Tell the family to leave the cream on the skin for twenty-four hours. Tell them to wash all clothes and bedding with soap and hot water. Tell them to repeat these procedures after one week.

### PREVENTION

- a. When an epidemic of typhus threatens the entire community, everyone must be deloused. If you suspect an outbreak, contact public health authorities for help.
- b. Typhus vaccine will help to prevent the disease. Immunize yourself and other health team members against typhus, if cases occur and typhus vaccine is available.

## Infectious Diseases Commonly Spread from Person to Person

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### MENINGITIS

#### SYMPTOMS

Newborn with history of complication during labor or delivery  
Irritability, drowsiness, poor suck, convulsions, fever  
Child or adult with possible history of upper respiratory infection; earache; boil on face, head, or neck  
Sudden onset of high fever, severe headache, vomiting  
Neck pain

#### SIGNS

Newborn or infant with tight or bulging anterior fontanelle  
Infant looks very ill  
Child or adult with high fever  
Neck stiffness or tenderness on flexing neck  
Patient's legs bend and draw up when you flex his neck  
Fever of unknown cause may be meningitis

#### PATIENT CARE

- a. Transfer the patient to a hospital. Go with the patient, if necessary, to be sure that he receives immediate attention. If you have started an intravenous drip, keep it operating during transfer to the hospital.
- b. If you suspect that the patient has tubercular meningitis, do not start antibiotic treatment.
- c. For all other suspected meningitis cases, begin antibiotics before leaving for the hospital. Use the following dosages:



**Adults**

3 g benzylpenicillin G IV or IM immediately. Then 9 g benzylpenicillin G in 500 ml normal saline for IV infusion. Continue the IV while you transfer the patient to a hospital.

**Children over seven**

1 g ampicillin IV over five to ten minutes. Repeat this dose every four hours. Alternatively, give ampicillin IM in the same dosage.

**Children under seven**

1 g ampicillin IV over five to ten minutes. Repeat this dose every four hours. Alternatively, give ampicillin IM in the same dosage.

In addition, give oral chloramphenical, 25 mg per kg of body weight, every four hours, to combat different bacteria the child may have that ampicillin may not effectively treat.

**Infants**

400 mg ampicillin IM every six hours

- d. Bring down the patient's temperature. If the patient's fever is very high, use cloth and cool water. Sponge the patient's entire body. If the patient can swallow, give him 600 mg of aspirin by mouth.

**PREVENTION**

- a. Tubercular meningitis will rarely develop if the patient is under treatment for tuberculosis. Although the signs and symptoms are the same, tubercular meningitis develops over several weeks.
- b. A patient with infection on his face, or in his ears or sinuses, or with infection elsewhere in the body, is more likely to develop meningitis than patients without these infections. Treat these infections vigorously.
- c. Report all patients with meningitis to your supervisor. An epidemic of meningitis requires additional preventive measures.

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**DIPHTHERIA****SYMPTOMS**

No history of immunization against diphtheria

Possible history of throat or ear infection  
Cough, sore throat, runny nose, fever, and hoarseness

High fever

Difficulty breathing

Very painful sore throat

**SIGNS**

Bright red throat

Gray membrane across tonsils and pharynx that bleeds when scraped away

Very swollen lymph glands in neck

High fever

**PATIENT CARE**

- a. If you suspect diphtheria, transfer the patient to a hospital immediately. He must receive diphtheria antitoxin as soon as possible.
- b. Before transfer, give the patient 600 mg of procaine penicillin G IM. If he is allergic to penicillin, give him 250 mg of oral erythromycin.
- c. Immunize other children in the family against diphtheria and tetanus.

**PREVENTION**

- a. Diphtheria rarely occurs in persons who have received the four-shot DPT series of immunizations in infancy, followed by a booster shot at school age.
- b. During an outbreak of diphtheria, give booster shots of DT vaccine to those people who have been immunized previously. Do not give the DT vaccine to anyone who has not previously been immunized. The DT vaccine can cause serious reactions. When treating anyone who has not previously been immunized, use only adsorbed purified "adult type" (Td) toxoid.

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**LEPROSY****SYMPTOMS**

Light colored patch on skin

Painless injury to hands and feet

**SIGNS**

Loss of sensation in hands and feet

Light colored, flat skin patch with sharp

edges and no sensation when touched lightly

Enlarged, tender peripheral nerves

PATIENT CARE

- a. When you suspect that the patient has leprosy, seek a second opinion before starting treatment. Refer the patient to a hospital or ask him to return to the health center when your supervisor will be present.
- b. When you have confirmed the diagnosis, begin treatment with dapsone. Begin with a very small dose and increase the drug slowly. Use the following dosage schedule:

	ADULTS	CHILDREN 12 TO 30 KG	CHILDREN BELOW 12 KG
First four weeks	25 mg twice weekly	25 mg once weekly	10 mg once weekly
Second four weeks	50 mg twice weekly	25 mg twice weekly	10 mg twice weekly
Third four weeks	100 mg twice weekly	50 mg twice weekly	25 mg twice weekly
After three months for tuberculoid leprosy	200 mg twice weekly	100 mg twice weekly	50 mg twice weekly
For lepromatous and border- line leprosy	300 mg twice weekly	150 mg twice weekly	75 mg twice weekly

- c. Tell the patient to return each week for the first month. During the second month, tell him to return every other week. Examine him carefully for any signs of a reaction. These include increased swelling and tenderness of peripheral nerves; swelling and redness of skin lesions; fever; swelling of joints; swelling of lymph glands; swelling and tenderness of testes; swelling and blockage of nose.
- d. If any signs of reaction develop, refer the patient to a hospital. Explain the symptoms of reaction to the patient. Encourage him to return to see you if any of these symptoms develop.
- e. Teach the patient the importance of taking

the drugs faithfully. Review his drugs with him at each visit.

- f. Prevent injuries and contraction deformities. Teach the patient how to protect himself from injuries. This is very important if he has any loss of sensation in his hands or feet. Help the patient obtain footwear that will protect him from injury. Teach him to carefully inspect his hands and feet daily and treat any injury promptly. Teach the patient to stretch any joints that are paralyzed. He must carry out these stretching exercises many times each day to prevent deformity and contractures.

PREVENTION

- a. Examine all members of your patients' families at least every six months for signs of leprosy. Begin treatment promptly if you detect leprosy among other members of a leprosy patient's family.
- b. Educate the community about leprosy. Teach the community that leprosy can be controlled. Encourage community members to look for early signs of the disease and seek treatment for it.
- c. Cooperate in the leprosy control program in your area.



# OTHER COMMON PROBLEMS

## Low Back and Joint Problems

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### LOW BACK PAIN CAUSED BY MUSCLE STRAIN OR SPRAIN OF THE SACROILIAC JOINT

#### SYMPTOMS

Pain in lower back

History of lifting heavy objects within previous twenty-four to forty-eight hours

#### SIGNS

Possible inability to stand upright because of low back pain

Spasm and tenderness of the strained muscles

Tenderness over sacroiliac joint

No sharp back or leg pains during straight leg raising test

No loss of sensation in either leg or foot

#### PATIENT CARE

- a. Encourage the patient to rest and sleep on a firm, flat surface.
- b. Tell the patient that he must avoid any activities that cause back pain. When the pain has gone away, then he can gradually begin these activities once more.
- c. Show the patient's family how to apply warmth to the painful areas. Use warm water bottles or hot bricks wrapped in cloth.
- d. Tell the patient to take 600 mg of aspirin every four hours to help relieve pain.
- e. Massage is an important technique for reducing muscle spasm. Many traditional practitioners are experts in giving massage.
- f. If the pain continues for more than two weeks, refer the patient to a hospital.

#### PREVENTION

- a. If the pain occurred while the patient was working or carrying heavy objects, demonstrate to him how to lift and carry objects without straining his back.
- b. Encourage the patient to sit and stand using good posture. Tell him that the bones of the neck, back, and legs should carry most of the

weight of the body. When the bones carry the body's weight, the muscles are relaxed and available for carrying out movements.

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### LOW BACK PAIN CAUSED BY DISK DISEASE

#### SYMPTOMS

Sudden onset of severe, sharp pain in one side of lower back

Often, pain that radiates down the leg to the foot

No history of injury from heavy work

Previous episodes of back pain months or years earlier

#### SIGNS

Sideways curvature of lower spine

Flattening of normal curve of lower spine

Limited and painful movement of lower spine

Tenderness over sciatic nerve

Positive straight leg raising test

Loss of muscle strength and sensation in leg and foot on the affected side

#### PATIENT CARE

- a. Tell the patient to sleep on a firm, flat surface such as a thin mattress supported by a board. Tell him he may be more comfortable if he places a pillow or blanket under his knees and raises his back slightly.
- b. Tell the patient to take 600 mg of aspirin every four hours to help relieve pain.
- c. Tell the patient he must remain at complete rest for as long as two weeks, until he is able to walk around without pain. Then he should very gradually return to full activity over a period of several months.
- d. If the pain has not begun to improve after a week, or is not gone after two to three weeks, refer the patient to a hospital for further evaluation. Several weeks of leg traction may relieve the pressure on the nerves.



However, if simple methods are not effective, the patient may require surgery.

## OSTEOARTHRITIS

### SYMPTOMS

- Pain in joint for months or years
- Usually large weight-bearing joint affected
- Usually older person affected
- In younger patient, possible history of injury to the joint
- Neck or back possibly affected

### SIGNS

- Limited movement of affected joint
- Tenderness or roughness with movement of affected joint
- Possible swelling from fluid around affected joint
- Possible swelling, warmth, and tenderness of distal joints of fingers

### PATIENT CARE

- a. Teach the patient that his osteoarthritis will last for the rest of his life. Help him understand that he must learn to live with the condition by putting less stress on his joints and by resting more.
- b. Tell the patient that he must rest the joint or joints that are causing him pain. This may require him to reduce or stop certain activities.
- c. Tell the patient to apply warmth to the joints for up to twenty minutes several times a day. Warm water soaks are simple, effective means of applying heat.
- d. Tell the patient that 600 mg of aspirin every four to six hours will provide some relief. Warn him about the stomach irritation that aspirin can cause.
- e. When the patient's neck is affected, tell him to sleep with a firm pillow. If the patient has signs of weakness or pain in his arms, refer him to a hospital.
- f. If the patient is overweight, loss of weight will reduce the strain on his joints. Help him to lose weight.
- g. Tell the patient that use of a cane or crutch can help reduce pain in the hips or knees.

## RHEUMATOID ARTHRITIS

### SYMPTOMS

- Fatigue and fever
- Loss of appetite and weight
- Stiffness and pain in joints in the morning and evening
- Difficulty, because of joint pain, carrying out daily activities
- More than one joint affected

### SIGNS

- Warmness, redness, and tenderness of affected joints
- Spindle-shaped deformity of the fingers
- Marked loss of movement of the affected joints

### PATIENT CARE

- a. During periods when the disease is active, urge the patient to remain in bed during the day. His body requires the extra rest. He must also rest the inflamed joints. If the hips or knees are inflamed, the patient should lie down for one to two hours several times during the day. Splint other joints so that the patient will rest them except when he exercises them to prevent loss of motion.
- b. Teach the patient and his family how to exercise the inflamed joint. Show them how to move the joint through its full range of motion at least three or four times during each exercise period. Tell the patient to repeat these exercises at least four times each day. Tell him that his family should exercise his joint while he relaxes his own muscles. Then he should attempt to move the joint, using the muscles that control the joint. The patient may find that moving the joint himself is more painful and more difficult. But it is very important to prevent atrophy of the muscles around the joint and to build up the strength of the muscles.
- c. Tell the patient to take 900 mg of aspirin every four hours. Tell him to reduce this dosage by one tablet each day if he notices ringing in his ears or abdominal pain. Tell him to take the aspirin with meals, and at bedtime with an antacid. By doing so, he will lessen the irritation of the stomach. Tell the patient that to benefit from aspirin, he must take the largest dose that he can tolerate.



## SEPTIC ARTHRITIS

### SYMPTOMS

Severe throbbing pain in a single joint  
Chills and fever  
Signs or symptoms of gonorrhea

### SIGNS

Large, weight-bearing joint usually affected  
Swelling, redness, tenderness of affected joint  
Severe limitation of movement of affected joint

### PATIENT CARE

- Rapid healing requires very high levels of antibiotics. Sucking the pus out of the joint may also be required. For these reasons, transfer the patient to a hospital after you start treatment.
- If the swelling and tenderness of the joint do not begin to improve within twenty-four to forty-eight hours of starting treatment, you must transfer the patient to a hospital. Removal of fluid from the joint and more vigorous treatment of the patient are necessary to prevent destruction of the joint.
- If you must treat the patient, keep him in bed at the health center. Start an intravenous infusion with 5% dextrose in water or 5% dextrose in 1/2 normal saline. You can use the infusion for giving antibiotics.
- Splint the affected joint so that it is bent slightly. Keeping the joint from moving will reduce the pain. Often, the patient will be more comfortable if you keep the joint slightly higher than the rest of the body.
- Give the patient 3 g of benzylpenicillin G IV every six hours. Continue this dosage for at least seventy-two hours. Then change the dosage to 1.5 g of benzylpenicillin G IM every six hours. Continue this dosage for at least one additional week. You must use sterile needles or you will cause severe abscesses at the injection sites.
- In addition to penicillin, give the patient oral chloramphenicol. Because you will not know the cause of the arthritis, you must give a second antibiotic. Chloramphenicol will attack many bacteria that penicillin will not attack. Use the following dosages:

Adults	500 mg every six hours
Children	
20 to 40 kg	375 mg every six hours
10 to 20 kg	250 mg every six hours
5 to 10 kg	125 mg every six hours

Continue chloramphenicol for at least ten days. Do not use chloramphenicol in infants under two months of age.

- Give the patient aspirin every four hours to relieve discomfort and help to reduce fever. Use aspirin only as required for this purpose. You may also apply warm compresses to the joint to relieve pain.
- As soon as the fever comes down and the swelling and tenderness of the joint begin to improve, move the joint through as full a range of motion as possible. Repeat this movement at least four times each day. This is an important way to prevent the joint from freezing in one position. Encourage the patient to move the joint, using his own muscles, at least four times a day.
- Transfer the patient to a hospital as soon as possible.

## Thyroid Problems

### SIMPLE GOITER

#### SYMPTOMS

Large swelling in front of the neck

#### SIGNS

Smooth or nodular enlargement of thyroid gland

#### PATIENT CARE

- When the patient has no symptoms of too much or too little thyroid hormone activity, treatment is not necessary.
- If the goiter is so large that the patient has symptoms from pressure of the gland within the neck, refer him to a hospital.
- When the soil contains too little iodine, urge the patient and his family to use iodized salt instead of ordinary salt. Iodized salt will provide the body with the required amount of iodine.

## PREVENTION

- a. If you practice in a region where many people have goiters, work with your community leaders to promote the use of iodized salt. Iodized salt will provide most people with enough iodine to prevent goiters.
- b. Women require extra iodine during pregnancy and lactation. In an iodine-deficient region, intramuscular injection of iodine every three years to women who are bearing children will help to prevent the birth of infants with symptoms of too little thyroid activity.

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## HYPOTHYROIDISM

### SYMPTOMS

Lack of energy  
Weakness and tiredness  
Large swelling in front of neck  
Severe constipation  
Abnormal sensitivity to cold  
In women, long menstrual periods with heavy bleeding

### SIGNS

Thick, dry skin  
Puffy, dull face  
Coarse, brittle hair  
Slow movements and speech  
Slurred speech with low-pitched, hoarse voice  
Enlarged thyroid gland

### PATIENT CARE

Refer any patient with hypothyroidism to a hospital for further evaluation. Do not attempt to treat a patient with this condition.

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## HYPERTHYROIDISM

### SYMPTOMS

Nervousness, restlessness, and irritability  
Large appetite but loss of weight  
Large swelling in front of neck  
Abnormal sensitivity to heat  
Frequent, loose stools

### SIGNS

Enlarged thyroid gland  
Bulging, staring eyes  
Fine tremors of the hands  
Moist skin,  
Fine, silky hair  
Resting pulse rate above eighty beats per minute

### PATIENT CARE

Refer any patient with hyperthyroidism to a hospital for further evaluation. Do not attempt to treat a patient with this condition.

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## Other Medical Problems

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### HEADACHE

#### SYMPTOMS

#### *Migraine Headache*

Rapid onset within a few minutes to one-half hour  
Usually affects one entire side of the head  
Intense, throbbing pain  
Nausea and vomiting  
Abnormal sensitivity to light  
Inability to carry out normal activities

#### *Tension Headache*

History of recent stressful situation  
Gradual onset over several hours  
Tight band of throbbing pain around head  
Pain at base of neck

#### SIGNS

No physical signs

#### PATIENT CARE

Examine the patient to rule out the other conditions that can cause headaches. Check the patient's temperature and blood pressure. Note any chills or unusual fever pattern. Examine his ears, nose, and throat. Tap over his sinuses, and note any tenderness or discharge. Examine his eyes for evidence of inflammation. Examine his teeth. Check for abscesses and tenderness.

Examine the patient's neck for muscle spasms and neck stiffness.



*Migraine Headache*

- a. Tell the patient that at the first suggestion of a migraine attack he should sit quietly in a darkened, quiet room and relax completely. Relaxing in a quiet, dark room will help to relieve the migraine attack. It will also help to make the drug more effective.
- b. Tell the patient to take one tablet of ergotamine tartrate and caffeine every thirty minutes until he has taken a total of three tablets or has developed side effects such as nausea and vomiting.
- c. Warn the patient that ergotamine is a very powerful drug and can cause side effects. Warn him to keep the drug out of the reach of children.
- d. If ergotamine does not prevent the patient's headaches or reduce their severity, tell him to stop using it. Refer the patient to a hospital for further evaluation and treatment.

*Tension Headache*

- a. Encourage the patient to think about the sources of tension in his life and to find ways to reduce the tension. Support him in whatever way you can.
- b. Explain to the patient the relationship between these tensions and his recurrent headaches.
- c. Tell the patient to take 600 mg of aspirin every four hours for relief of pain.

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**STROKE****SYMPTOMS**

Sudden onset of headache, vomiting, dizziness, and confusion  
 Loss of consciousness  
 Weakness of arm, leg, or face  
 Sudden difficulty in speaking or in moving an arm or leg  
 Possible history of high blood pressure

**SIGNS**

Paralysis of arm, leg, or face on one side  
 Difficulty in speaking  
 With loss of consciousness, deep breathing

**PATIENT CARE**

- a. The patient will be most comfortable lying

on his back and propped up in a partially seated position. Tell the patient's family to change his position every hour so that he does not develop ulcers on his buttocks or back.

- b. Use a rubber suction bulb to keep the mucus sucked out of the patient's nose and throat. This will help him to breathe. It will also help to prevent chest infection.
- c. If the patient cannot chew food, show the family how to prepare soft or liquid foods.
- d. If the patient is unable to swallow, start an intravenous infusion. Give the patient 1000 ml of 5% dextrose in water and 1000 ml of normal saline or Ringer's lactate every twenty-four hours.
- e. If the patient is unconscious or convulsing, transfer him to the hospital as quickly as possible.
- f. After several hours to days, the patient will have suffered the maximum amount of damage to his brain. If he has survived, you must work with him and with his family to help him regain some function. This process is called rehabilitation. Seek guidance from your supervisor or hospital in working with the patient during this period.

**PREVENTION**

Look for and treat any patient with high blood pressure. More than anything else that you can do, this will reduce the frequency of strokes.

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**GRAND MAL EPILEPSY****SYMPTOMS**

Possible warning, called an aura, before attack  
 Sudden loss of consciousness  
 Rhythmic jerking of arms, legs, and head  
 Possible urination and passing of stool  
 Possible biting of tongue or cheek  
 Difficulty waking  
 Confusion and no memory of attack  
 History of similar attacks

**SIGNS**

Usually no signs unless you witness the seizure



## PATIENT CARE

- a. Help the patient's family learn how to protect him from injury during a seizure. Teach them to lay the patient on his side so that he will not choke. Tell them to allow the patient to jerk back and forth while they gently restrain his arms and legs.
- b. Whenever a person has a seizure for the first time, you must suspect that he has a brain infection. Examine him for evidence of fever and stiff neck. If you are not sure about the problem, treat him as a patient with meningitis. If the patient continues to have one seizure after another, you must stop the seizures by giving the patient 10 mg of diazepam IV. Repeat this dosage after twenty minutes, and then give a third dose, if necessary. If diazepam is not available, give the patient 300 mg to 1000 mg of amobarbital IV very slowly over a five minute period. Start with the smaller dose. If you cannot inject the drug intravenously, give it intramuscularly. The intramuscular injection will take longer to have an effect. Give children 3 mg to 12 mg of amobarbital per kg of body weight as a single dose IV or IM.
- c. If the patient has a history of convulsions, start him on a drug that will prevent further attacks. Tell him to take 100 mg of phenytoin every evening. After one week, increase the dosage to 200 mg. Continue to increase the dosage each week if the patient continues to have seizures. But do not increase the dosage beyond 600 mg daily.
- d. If a maximum dose of phenytoin does not control the seizures, begin giving the patient 60 mg of oral phenobarbital each evening. Gradually increase this dosage to a maximum of 360 mg. Do not give more than is required to prevent seizures. Give children 3 mg to 5 mg per kg of body weight at bedtime. Increase the dosage each week until seizures have stopped or the patient develops side effects.
- e. If you cannot control the seizures with these medications, refer the patient to a hospital for further care and evaluation.
- f. Carefully instruct the patient to continue taking these drugs each day. Warn him that if he suddenly stops taking the drugs, he will probably have more seizures. If he has had not seizures for three to five years, you may

advise him to carefully and slowly cut the dosage of drugs, week by week, over a one-year period. However, if the patient has another seizure, he must continue to take the drug.

- g. Young children who suddenly have a convulsion may be suffering from meningitis. If they have not had previous attacks, or if they have a fever, you must consider the possibility of meningitis. Treat the patient for meningitis if you suspect that it has caused the convulsion. Refer the patient to a hospital immediately.

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**PETIT MAL EPILEPSY**
**SYMPTOMS**

Patient suddenly stops what he is doing or saying, stares blankly for several seconds, then begins again as if nothing has happened

Patient may have many attacks every day without knowing or remembering

No jerky movements

During attack, patient is unresponsive

**SIGNS**

Physical examination does not reveal any signs

Patient may also suffer from grand mal epilepsy

**PATIENT CARE**

- a. When you suspect petit mal epilepsy, refer the patient to a hospital for further evaluation.
- b. 250 mg/5 ml ethosuximide elixir is an effective drug for petit mal epilepsy. If the patient is under six years of age, begin with 125 mg (2.5 ml) twice a day. For patients six years of age and older, begin with 250 mg (5 ml) in the morning and at night. Gradually increase the dose each week by 125 mg a day in patients under six years of age. Increase the dose of patients six years of age and older by 250 mg a day each week. The usual maximum dose for patients under six years of age is 1000 mg (20 ml) a day. Patients six years of age and older may require up to 1500 mg (30 ml) a day.



- c. Ethosuximide can cause nausea, vomiting, and drowsiness. If these symptoms develop, reduce the dosage.
- d. If the attacks continue, refer the patient to the hospital again for further evaluation.

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## ANEMIA

### SYMPTOMS

Weakness, tiredness, fainting

Easily winded

Patient most often either an infant with low birth weight, a pregnant woman, or a woman with heavy menstrual periods

Patient may have hookworms, peptic ulcer, cirrhosis, malaria, or sickle cell disease

### SIGNS

Pale or white nail beds, conjunctivae, and mucous membranes of mouth

### PATIENT CARE

- a. If the patient has become anemic very rapidly from bleeding, transfer him quickly to a hospital. Begin an intravenous infusion with normal saline solution before you transfer him. He will develop shock if the bleeding has been severe.
- b. Give the patient iron in either tablet or liquid form of ferrous sulfate. Give children who cannot swallow pills the liquid preparation. The drug works better if the patient takes it between meals. But it may irritate his stomach. If the patient takes the drug at meal times, it will cause less stomach irritation. Use the following dosages:

Adults	300 mg	three times a day
Children		
six to twelve	300 mg	twice a day
one to six	150 mg	twice a day
under one year	60 mg	three times a day

- c. Find the cause of the patient's anemia and treat that also. Otherwise, the anemia will occur again.

### PREVENTION

- a. Give women who are pregnant or breast-feeding 300 mg of ferrous sulfate daily. This will provide the extra iron that their bodies need.

- b. Give infants who were born before nine months, or who weigh less than 2 kg at birth, a liquid preparation of iron. Give approximately 60 mg of liquid ferrous sulfate daily for at least three months.
- c. Encourage families to eat iron-rich foods regularly. These foods include leafy green vegetables, molasses, red meat, liver, and eggs.

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## CANCER

### SYMPTOMS

Skin sores or lesions that do not heal

Hard lumps or masses anywhere in the body

Breast lumps

Large liver or spleen or other hard mass in the abdomen

Unexplained blood in urine

Bleeding after intercourse, between menstrual periods, or after menopause

Blood in the stool or unexplained bleeding from the rectum

Unexplained loss of weight or appetite

### SIGNS

Weight loss

Enlarged, hard lymph glands

Enlarged liver and spleen

Hard, rapidly growing mass in the abdomen, rectum, or uterus

Breast lumps, dimpling, or discharge from nipples

Skin lesions that do not heal

### PATIENT CARE

- a. When you suspect that the patient has cancer, refer him to a hospital.
- b. When the cancer cannot be cured or controlled, help to keep the patient comfortable. This may require strong pain medications such as morphine.
- c. Help the family to provide the patient with a diet that he can digest. They may have to chop the food and give it to the patient in a more liquid form when he has little appetite or willingness to eat.
- d. Treat the patient for infections that may occur during the course of his cancer. Look for signs of pneumonia, urinary tract infections, and infections in other sites.



## DIABETES MELLITUS

### SYMPTOMS

- Increased thirst
- Passing of large amounts of urine
- Weight loss in spite of large appetite
- Possible history of severe bacterial infection of skin, urinary tract, or lungs

### SIGNS

- Possible overweight or obesity
- Sugar in urine

### PATIENT CARE

- a. If the patient is overweight, help him to lose weight. Advise the patient to reduce the total amount of food, or calories, that he is eating. Encourage diabetic patients to avoid foods that contain processed sugar. Encourage them to eat fresh fruits and vegetables, and foods that are good sources of protein, such as lentils, fish, meat, eggs, and milk.

Find out when the patient usually eats. Help him to space his meals throughout the day. Small frequent meals are better than one or two large meals.

- b. If the patient does not exercise regularly, he will have difficulty losing weight. Encourage him to develop a daily pattern that includes exercise.
- c. The hospital staff will advise the patient about whether he must receive insulin or another type of sugar-lowering agent. If the patient must receive insulin, be certain that he has the supplies that he requires. Observe him while he prepares and administers his insulin. Make sure that he carries out these procedures properly so that he will not suffer from complications such as infection at the site of injection. See Patient Care Procedure for Teaching a Patient How to Give Himself an Insulin Injection.

### COMPLICATIONS

- a. If the patient develops the signs and symptoms of ketoacidosis, start an intravenous infusion with Ringer's lactate or normal saline. Refer him to a hospital as quickly as possible.
- b. If the patient is taking a blood sugar-lowering agent by mouth or by injection,

teach him the symptoms of low blood sugar. Teach him how to treat himself by drinking a sugar solution. If a patient is in a coma caused by low blood sugar, then 20 cc of 50% glucose intravenously will wake him up. Always suspect low blood sugar when you encounter a patient who cannot be aroused.

- c. Treat any infection by bacteria or fungus with the appropriate medication.
- d. Diabetic patients have a great risk of injury to their feet. Teach the patient to keep his feet clean and dry. Teach him to inspect his feet daily and to treat all cuts or lacerations promptly. Tell him he must wear shoes at all times. If you see any evidence of foot infection, treat the infection with antibiotics and warm water soaks four times a day until the infection is cleared up.

### FOLLOW-UP OF DIABETIC PATIENTS

- a. Check the patient's weight at each visit.
- b. Review his diet, especially if he is overweight and he is not successful in bringing his weight down.
- c. Find out what kind and how much exercise the patient takes daily. Encourage him to develop regular exercise patterns.
- d. Ask about frequency of urination, hunger, and thirst. These are symptoms of poorly controlled diabetes.
- e. If the patient has sugar in his urine, his diabetes is not under good control. Refer him to a hospital for further help. Use indicator paper to test the patient's urine for sugar. Follow the instructions that come with the indicator paper.

## Mental Health and Alcohol Abuse Problems

### ACUTE CONFUSION

#### SYMPTOMS

Does not know where he is, who he is, or what day or time of day it is

#### SIGNS

Looks lost and disturbed



## PATIENT CARE

- a. Perform a careful medical history and physical examination to attempt to determine the cause for the acute confusion. Suspect a severe bacterial infection, malaria, alcohol, or other type of poisoning.
- b. Place the patient in a quiet room. Ask one or two close relatives to care for him. Keep other people and noises out.
- c. Be careful that the patient consumes enough water and food to avoid thirst and starvation.
- d. If the patient appears anxious or excited, give him 50 mg chlorpromazine IM or by mouth every eight hours. Increase the dosage as required to control anxiety and agitation.

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## ANXIETY

### SYMPTOMS

Sudden loss of breath  
 Sudden unexplained fear of death  
 Pounding of the heart  
 Tiredness and irritability  
 Suddenly feels large lump in throat

### SIGNS

Restlessness, fear, and distraction  
 Increased pulse rate  
 Possible increased blood pressure

### PATIENT CARE

- a. Always examine the patient carefully to be certain that he does not have a serious physical illness causing his symptoms.
- b. Explain the anxiety to the patient and his family. Help them to identify possible causes for the anxiety. Help them to find ways of handling these problems.

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## DEPRESSION

### SYMPTOMS

Inability to sleep at night  
 Poor appetite and weight loss  
 Loss of interest in life  
 Possible thoughts about killing himself

Frequent headaches and irritability  
 Inability to concentrate on his work

### SIGNS

Unhappiness, distress, and distraction  
 Responds slowly to questions  
 May not answer questions intelligently

### PATIENT CARE

- a. Discuss the patient's depression with his family. Explain to them that he needs a great deal of support and comfort. Encourage them to be patient and loving.
- b. If the patient has thoughts about killing himself, or has attempted it, instruct the family to stay with the patient. This is especially important at night.
- c. If the depression is severe, or the patient's mental state is not normal, refer him to a hospital. He requires treatment with anti-depressant drugs.

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## ACUTE ALCOHOL INTOXICATION

### SYMPTOMS

Unconscious or difficult to arouse

### SIGNS

Strong odor of alcohol on breath  
 Slurred speech  
 Unsteady walk, staggering  
 Possibly violent, aggressive, loud, or drowsy

### PATIENT CARE

- a. Prevent the patient from drinking any more alcohol. Allow him to sleep.
- b. Prevent the patient from harming himself or others while he remains intoxicated.

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## CHRONIC ALCOHOLISM

### SYMPTOMS

Denies that alcoholism is a problem  
 Insists that he can stop drinking whenever he wants to  
 History of frequent intoxication  
 Poor appetite, nausea, and vomiting

SIGNS

Weight loss and poor nutrition

Possible tenderness in the upper abdominal area

Enlarged liver, jaundice, other signs of cirrhosis

PATIENT CARE

- a. Help the patient to recognize that his drinking represents a serious medical problem that must be treated.
- b. With the patient and his family, work out

steps that they can take to help the patient stop drinking alcohol. The best results occur when patients with chronic alcoholism meet together to support each other in staying away from alcohol. Help him recognize that complete abstinence from alcohol consumption is the only treatment for his problem.

- c. Encourage the patient and his family to improve the patient's diet. Patients with chronic alcoholism are often poorly nourished.



# TRAUMA AND EMERGENCY

## Shock and Unconsciousness

### SHOCK

#### SYMPTOMS

Weakness  
Anxiety  
Fear of dying  
Abnormal thirst  
Shortness of breath

#### SIGNS

*Shock Caused by Severe Bleeding,  
Fluid Loss, Infection, or  
Severe Heart Failure*

Restlessness and anxiety  
Shallow, rapid respirations  
Weak, rapid pulse  
Low blood pressure  
Cold, clammy skin  
Pale skin, blue lips, and nail beds  
Possible unconsciousness

*Anaphylactic Shock Caused by Drugs or  
Stings*

Large red welts on skin  
Swelling of face and lips  
Severe wheezing and trouble breathing  
Cyanosis

#### PATIENT CARE

*Shock Caused by Severe Bleeding, Fluid  
Loss, Infection, or Severe Heart Failure*

- Check the patient's airway and make certain that it is clear. Begin mouth-to-mouth resuscitation if breathing has stopped.
- Stop severe bleeding by direct pressure.
- Position the patient so that his feet are about 20 cm higher than the rest of his body.
- Prevent movement of any fracture of large bone or spine to reduce further bleeding into tissues.
- Place blankets over and under the patient to keep him warm.
- If the patient is in shock from severe heart failure or myocardial infarction, do not give him intravenous fluids.

If the patient is in shock from severe bleeding or fluid loss, begin an intravenous infusion with the largest needle that you have. Run normal saline into the patient at a rapid rate. Alternatively, use Ringer's lactate. See Patient Care Procedures for Starting an Intravenous Solution in a Peripheral Vein and for Giving Intravenous Fluids.

If the patient is in shock because of severe infection, remember that he has not lost a large amount of fluid or blood. Be very careful not to run the IV solution rapidly, or you can easily make his condition worse by giving him too much fluid.

- Record the patient's pulse and blood pressure every fifteen minutes.
- Transfer the patient to a hospital as rapidly as possible. If the patient has lost a lot of blood, take several relatives with him who can donate blood.
- If the patient is in shock because of a severe infection, give him 600 mg of benzylpenicillin G IV every four hours. Also give him 500 mg of streptomycin IM every twelve hours.

*Anaphylactic Shock Caused by Drugs or  
Stings*

Some patients may be very allergic to certain drugs or animal poisons, especially bee stings. Within a few minutes of receiving the drug, or the insect or animal sting, the patient may become very anxious and short of breath. He may begin to choke and become blue. His skin may become cold and clammy. He may have swelling around his eyes or other parts of his body. These signs can quickly progress to unconsciousness and coma. Without treatment, the patient can die in as short a time as ten to fifteen minutes.

You must keep epinephrine and a small syringe and needle on hand at all times at the health center. Do not administer antibiotics unless you have these supplies ready to use. If the patient suddenly develops the symptoms and signs of anaphylactic shock, carry out the following procedures.

- a. Place the patient flat on his back with his feet elevated about one-half meter above the level of his head. Loosen his collar and make certain that his airway is open.
- b. Give the patient an injection of 1:1000 solution of epinephrine SC. Use the following dosages:
 

Adults and children	
40 kg and over	0.5 cc
Children	
20 to 40 kg	0.3 cc
10 to 20 kg	0.2 cc
Under 10 kg	0.1 cc
- c. Record the patient's pulse, respiratory rate, and blood pressure every five minutes.
- d. If possible, begin an intravenous infusion of normal saline solution as soon as you have given the patient epinephrine.
- e. If the signs of shock continue, give the patient a second injection of epinephrine in five to ten minutes. Follow this with further injections as necessary. Use the same dosage of epinephrine as the first injection.
- f. If the patient has swelling and itching of the skin, give him 10 mg of chlorpheniramine IM. Give children 0.5 mg per kg of estimated body weight, up to a maximum dosage of 10 mg.
- g. If signs of shock continue for more than thirty minutes, transfer the patient to a hospital as quickly as possible. Accompany him to the hospital so that you can continue to monitor his vital signs and give him epinephrine as required.

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## UNCONSCIOUSNESS

### SYMPTOMS

Unconsciousness may be caused by any of the following conditions:

Meningitis  
 Cerebral malaria  
 Epilepsy  
 Stroke  
 Trauma to the head  
 Acute alcohol intoxication  
 Severe liver disease  
 Poisoning  
 Shock  
 Low blood sugar or ketoacidosis in a diabetic patient

### SIGNS

Patient will not respond when you try to arouse him

Signs vary according to the cause of the unconsciousness

Meningitis—stiff neck or, in young infant, bulging fontanelle

Septic shock, cerebral malaria, meningitis—high fever

Acute alcoholic intoxication—odor of alcohol or acetone on the breath

Shock—weak, rapid pulse; low blood pressure; cold, clammy, pale skin; blue lips and nailbeds; dehydration

Head trauma, stroke—pupils unequal in size, or unresponsive to light, or very small or very large

Hepatitis, cirrhosis—jaundice or enlarged liver

Poisoning—very shallow respiration

Diabetic ketoacidosis—deep, rapid respirations

### PATIENT CARE

- a. Check the patient's airway and make certain that it is clear. Begin mouth-to-mouth resuscitation if he is not breathing.
- b. Place the patient in the recovery position so that he will not choke if he begins to vomit.
- c. If the patient has been in an accident, and has a possible neck or back injury, do not move him until you have splinted him. See Patient Care Procedure for Placing a Patient with a Possible Fracture of the Spinal Column on a Blanket.
- d. Stop any severe bleeding.
- e. Assess the patient carefully for possible causes for his unconsciousness, and treat him accordingly.

## Blocked Airway, Acute Respiratory Failure, Snake Bite, Poisoning

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### BLOCKED AIRWAY

#### SYMPTOMS

Inability to breathe in  
 Extreme anxiety



**SIGNS**

Gagging and choking  
 Cyanosis or pallor  
 Possible unconsciousness with no breathing at all

**PATIENT CARE**

- a. Strike the patient vigorously on his back to help remove a foreign object from his upper airway. If the patient is a child, hold him with his head down, and then strike him on the back.
- b. If back blows do not relieve the obstruction, use manual thrusts. See Patient Care Procedure for Using Manual Thrusts to Clear an Adult's Blocked Airway.
- c. If manual thrusts also fail to relieve the obstruction, open the patient's mouth with the fingers of one hand. Reach into the back of his throat with your other hand. Attempt to feel any foreign body and pull it out of his throat.
- d. If these procedures fail to relieve the patient, begin mouth-to-mouth resuscitation. Watch the patient's chest as you blow to determine if air enters his lungs. If air is not entering his lungs, repeat the manual thrusts. Then resume mouth-to-mouth resuscitation.
- e. If swollen tissue from an infection is blocking the patient's airway, transfer him to a hospital as quickly as possible.

**PREVENTION**

Discuss with community members the dangers of airway obstruction. Demonstrate the methods that will relieve the obstruction. Most acute obstructions will occur in the home. Treatment must occur there to be successful.

**ACUTE RESPIRATORY FAILURE****SYMPTOMS**

Any of the following conditions may cause acute respiratory failure

Drowning  
 Poisoning  
 Electric shock  
 Trauma to the head  
 Lack of oxygen  
 Carbon monoxide poisoning

**SIGNS**

Little or no breathing  
 Very little movement of chest or abdomen  
 Unconsciousness  
 No detectable movement of air through nose or mouth  
 Blue or pale skin

**PATIENT CARE**

- a. When the patient is not breathing, begin mouth-to-mouth resuscitation immediately. Position the head so that the tongue does not block the airway.
- b. Note whether the chest rises when you blow into the lungs. If the chest does not rise, treat the patient for upper respiratory obstruction. See Patient Care Procedure for Removing a Foreign Body from a Person's Throat with Your Fingers.
- c. When the airway is clear and the patient is getting air into his lungs, check the carotid pulse. If you feel no pulse, use your fist to pound on the lower left side of the sternum several times. Recheck the carotid pulse and continue mouth-to-mouth resuscitation. If the patient is not breathing after fifteen minutes, and has no pulse, stop your efforts.

**SNAKE BITE****SYMPTOMS**

Pain at the site of snake bite  
 Difficulty talking or swallowing  
 Difficulty breathing  
 Blood in the urine or bleeding into skin or elsewhere in body

**SIGNS**

Fang marks at site of snake bite  
 Swelling and discoloration around snake bite  
 Drooping of eyelids or difficulty swallowing, talking, or breathing  
 Bleeding from gums or into skin or into urine

**PATIENT CARE**

- a. Calm the patient and insist that he lie down quietly.
- b. Clean the snake bite with soap and water. Dress it lightly.



- c. Splint a bitten arm or leg to prevent movement.
- d. Apply a tourniquet of wide cloth between the snake bite and heart. Tighten the tourniquet enough to prevent the flow of blood back to the heart. Make sure that pulses are present below the tourniquet.
- e. If snake antivenom is available at a hospital within six to twelve hours travel time, and local signs of poisonous snake bite are present, transfer the patient to a hospital. Snake antivenom is the only specific treatment that slows down the poisoning of the body by the venom.
- f. Do not permit the patient to drink alcohol or stimulants such as coffee and tea. These substances increase the absorption of the snake venom into the blood stream. Do not give the patient aspirin or sedatives. They may increase the effects of the venom.
- g. If the patient has been immunized previously, give him 0.5 cc of tetanus toxoid IM. If he has not been immunized, he will require tetanus antitoxin. Refer him to a hospital for this treatment.

#### PREVENTION

- a. Tell community members about the most important first aid steps for snake bites. Tell them to keep the victim calm and lying down. Tell them to carry him, if possible. If he must walk, tell him to walk slowly and rest frequently, to slow down the absorption of poison into his body. Tell them to splint a bitten arm or leg to reduce movement. Tell them to bring the patient to the health center as quickly as possible.
- b. Encourage workers to wear long pants and high-topped boots when they are working in snake-infested areas.
- c. Tell children that they must not play in high grass or areas where snakes may live.

## POISONING

#### SYMPTOMS

Trouble breathing  
Blurred vision, dizziness, weakness  
Nausea and vomiting  
Severe pain in mouth, throat, chest, and stomach

Convulsions, unconsciousness

Possible history of

attempted suicide  
work with insecticides  
work with petroleum products  
recent eating or drinking of anything with a bad or unusual taste

#### SIGNS

Unconsciousness  
Respiratory failure  
Shock  
Burns on lips, mouth, or throat  
Petroleum smell on breath  
Sweating and salivation  
Twitching muscles  
Constricted pupils that do not react to light

#### PATIENT CARE

- a. First check the patient's vital signs. If he is not breathing, give him mouth-to-mouth resuscitation. If he is suffering shock, start an intravenous infusion. Use normal saline solution.
- b. Attempt to find out the type and amount of poison the patient consumed and the time he consumed it. Give further treatment according to the type of poison.

If you suspect that the patient has swallowed less than two mouthfuls of a petroleum product, do not pass a nasogastric tube. If he has swallowed a larger amount, pass the tube into the stomach and flush out the stomach with two to three liters of water. See Patient Care Procedure for Passing a Nasogastric Tube.

If the patient has insecticide poisoning, pass a nasogastric tube into his stomach, and flush out his stomach with two to three liters of water. If the poison got onto his clothes, remove his clothing. Give adults 2 mg of atropine IV or IM every five to ten minutes until the symptoms are gone or the patient's pupils dilate and he develops a very dry mouth. Give children 0.05 mg of atropine per kg of body weight.

If the patient has swallowed a caustic substance such as lye or acid, give him milk or any other liquid in order to dilute the poison. Do not make the patient vomit.

To treat all other poisons, encourage vomiting. Give the patient ipecac syrup immedi-



ately. Give adults four to six teaspoons followed by two glasses of water. Give children three teaspoons, followed by a glass of water. Repeat the dosage in fifteen minutes if the patient has not vomited. Or put two tablespoons of salt in half a glass of water and have the patient drink it. Or pass a nasogastric tube into your patient's stomach. Flush the stomach out with two to three liters of water.

- c. If the patient still has any signs of poisoning, transfer him to a hospital as quickly as possible.

#### PREVENTION

- a. Visit the patient's home. Help the family to label fuel bottles and store them out of reach of children. Throw away old drugs. Point out hazards, and make suggestions about how to reduce the risk of poisoning.
- b. Work with the community to reduce the risk of poisonings in the home. Show community members how to prevent poisonings in their homes.

is spurting out, put direct pressure on the wound with your fingers. Do not wait for clean dressings or other supplies.

- b. After controlling arterial bleeding, and before controlling less severe bleeding, check the patient's airway and his pulse and respirations. If necessary, clear the airway and begin mouth-to-mouth respiration.
- c. Begin treatment for shock if bleeding has been severe or patient has lost more than an estimated 200 ml of blood.
- d. Apply a pressure dressing to the wound. Follow Patient Care Procedure for Applying a Pressure Dressing.
- e. If you cannot control bleeding with direct pressure, apply a tourniquet. Follow Patient Care Procedure for Using a Tourniquet to Control Breathing.

#### PREVENTION

Teach the community that severe bleeding leads rapidly to shock and death. Tell community members that they must stop severe bleeding immediately by using direct pressure on the wound. Demonstrate the technique of applying direct pressure.

## Bleeding and Lacerations

### BLEEDING

#### SYMPTOMS

History of injury that has cut blood vessels or broken bones

Increasing pain in the abdomen following injury

History of chest pain or coughing up blood following injury

Symptoms of shock, if rapid loss of blood

#### SIGNS

Bright red blood that spurts from an artery

Dark red blood that flows more slowly or oozes from a vein

Signs of shock without evidence of external bleeding may be caused by internal bleeding

#### PATIENT CARE

- a. If the patient is losing a large amount of blood through a wound, and bright red blood

### LACERATIONS

#### SYMPTOMS

Deep wound, infected wound, wound from animal or human bite

Pain

Loss of blood

Loss of function caused by damage to nerve or muscle

#### SIGNS

Internal bleeding in deep cuts and punctures of the chest, abdomen, and groin

Tendon damage

Nerve damage

Arterial blood vessel damage

Tissue damage

#### PATIENT CARE

- a. Examine patient for signs of shock. Begin treatment for shock if the patient has lost more than 200 ml of blood.
- b. To treat small lacerations without tendon,



nerve, or artery damage, scrub with soap and water. Follow Patient Care Procedure for Cleaning Lacerations. Remove any dead tissue. Follow Patient Care Procedure for Removing Dead Tissue from a Wound. Trim off any jagged or rough edges of the wound. Apply a dressing or butterfly bandage if the wound is less than 1 cm long on the face, or 2 cm long elsewhere on the body, and does not cross a joint. Suture larger wounds, or wounds that become pulled apart on movement of a joint. If the wound is more than twelve hours old, or you see evidence of infection, do not suture the wound. Apply a clean dressing, and bandage the wound. Tell the patient to soak the wound in clean warm water four times a day, until the wound has a clean, dry crust covering it.

- c. Treat larger wounds, or wounds that involve tendons, nerves, or larger blood vessels, as follows. If someone has already applied a pressure dressing to stop bleeding, transfer the patient to a hospital without further inspection. If the wound is fresh, or it is not properly dressed, expose it. If bleeding is controlled, then scrub the wound with soap solution and water. Irrigate the wound with sterile water or salt solution for ten to fifteen minutes. Flush all parts of the wound repeatedly. Then put a dressing over the wound and bandage it. Transfer the patient to a hospital.
- d. If the wound is more than twelve hours old and does not involve tendon, nerve, or large blood vessels, give the patient 600 mg of procaine penicillin G IM and tell him to take a 250 mg oral penicillin V tablet every six hours for five days. If he is allergic to penicillin, substitute 125 mg of erythromycin every six hours for five days. Even if the wound is more than twelve hours old and involves tendon, nerve, or large blood vessels, after starting antibiotic treatment, transfer the patient to a hospital.
- e. Protect the patient against tetanus. If he has had tetanus shots before, give him tetanus toxoid. If he has not been immunized before, begin a series of tetanus shots.

Transfer the patient to a hospital if his laceration is a puncture, is very large, or is in-

fectured and the patient has no history of tetanus immunization.

### *Human Bite*

- a. Scrub the wound with soap and water.
- b. Cut out any crushed tissue or tissue that does not appear to be alive. Follow Patient Care Procedure for Removing Dead Tissue from a Wound.
- c. Do not suture the wound. It must heal without closure. Tell the patient to soak the wound in warm, clean water for thirty minutes four times a day.
- d. Give the patient a 0.5 ml tetanus toxoid injection IM. Repeat the injection in six weeks if the patient has not had tetanus toxoid previously.
- e. Give a patient with a human bite an oral antibiotic such as 500 mg of ampicillin every six hours for five days.

### *Animal Bite*

- a. Suspect a risk of rabies if the bite is from any wild animal, especially if the attack was unprovoked; if the animal that bit the patient has been killed or has escaped; if the animal that bit the patient becomes sick or dies within ten days; or if the animal bit the patient in the head or neck.
- b. Note whether the bite marks are on face and neck, body, or arms and legs. Note the depth and severity of bites.
- c. Scrub the wound with soap and water.
- d. Cut out any tissue that has been injured or is pale or discolored. Follow Patient Care Procedure for Removing Dead Tissue from a Wound.
- e. Irrigate the wound with sterile salt solution for fifteen minutes. Irrigate all parts of the wound.
- f. Do not suture an animal bite.
- g. Refer any patient with a risk of rabies to a hospital immediately.
- h. Give the patient 0.5 ml of tetanus toxoid IM. Repeat this injection after one month and again after two months if the patient has not had tetanus toxoid previously.



## Fractures, Sprains, Dislocations, and Burns

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### FRACTURES

#### SYMPTOMS

Recent history of accident  
Possible snapping sound  
Sudden onset of pain  
Inability to move injured limb

#### SIGNS

Deformity around injury  
Swelling over fracture site  
Tenderness over fracture site  
Legs of unequal length in hip fracture  
Bone visible in wound or protruding from wound in open fracture

#### PATIENT CARE

- If the patient is an accident victim, assess him for airway obstruction, breathing difficulty, and possible shock before you give further care. Stop any severe bleeding.
- If you suspect a possible fracture of the spine, do not move the patient until you have assessed him for this injury. If fracture of the spine is possible, splint the patient where he is before you move him.
- When an open fracture is present, do not attempt to replace a protruding bone. Cover the injury with a clean dressing and apply a pressure bandage.
- Splint any fracture you identify. Follow the Patient Care Procedures for splinting individual bones.
- Transfer the patient to a hospital for further evaluation and care. Choose the least bumpy means of transport, even if it is slower. Speed is usually less important than comfort.
- If the patient in severe pain, give him 50 mg to 100 mg of pethidine IM every four to six hours. Give children 1 mg to 2 mg per kg of body weight.

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### SPRAINS

#### SYMPTOMS

Sudden twisting of joint  
Pain and swelling of injured joint  
Pain with movement of injured joint

#### SIGNS

Swelling and tenderness around joint  
Possible black and blue discoloration of skin, in case of severe sprain  
Possible associated fracture

#### PATIENT CARE

- Tell the patient to keep the joint slightly elevated for the first twenty-four hours. Tell him to apply ice packs to the joint. Elevation and ice packs will keep swelling to minimum.
- Apply a firm elastic bandage. When the ankle is affected, begin wrapping the ankle joint at the toes.
- If the swelling and pain are severe, refer the patient to a hospital. A walking cast is the preferred treatment for an ankle sprain. This injury requires from six to eight weeks for healing.
- Give the patient aspirin for pain relief.

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### DISLOCATIONS

#### SYMPTOMS

Severe pain in joint  
Pain with movement of affected joint  
Inability to move affected limb

#### SIGNS

Deformity  
Tenderness  
Limitation of motion in joint  
Possible fracture

#### PATIENT CARE

- For shoulder discoloration, follow Patient Care Procedure for Restoring a Dislocated Shoulder.

- b. For dislocation of the jaw, wrap both thumbs with gauze to protect them. Then insert the thumbs in the patient's mouth and press down firmly against the lower back teeth, while lifting the front of the jaw with your fingers. After you have reduced the dislocation, or if you are unable to reduce the dislocation, refer the patient to a hospital.

- c. For other dislocations, refer the patient to a hospital after splinting the involved joint.
- d. Give the patient aspirin for pain relief. For more severe pain, give him 50 mg to 100 mg of pethidine IM. Give children 1 mg to 2 mg per kg of body weight.

## BURNS

	FREQUENT CAUSES	SYMPTOMS	SIGNS
First degree	Sun, low intensity flash	Increased sensitivity of skin	Red skin, blanches on pressure
Second degree	Scalds, flash flame	Very painful to touch	Blistered, mottled, red skin, broken surface with weeping
Third degree	Fire	Relatively less painful than second degree Signs of shock	Dry, pale white or charred skin Fat exposed through broken skin

### PATIENT CARE

#### *First Degree Burns*

- Immerse the burn in cool water, or apply cool compresses.
- Cover the burn with a dry dressing if the burn is in an area that is difficult to keep clean.
- Give the patient aspirin for pain relief.

#### *Second Degree Burns*

- Do not break blisters or attempt to clean skin with soap and water. Do not apply ointments or other substances to the burn. They will increase the risk of infection. Cut away loose tissue and broken blisters with clean forceps and scissors.
- Cover the burn with dry, clean dressings such as a freshly ironed sheet or other type of linen.
- If possible, keep the burned area elevated above heart level. This will help to reduce fluid loss into the tissues.
- Give the patient aspirin for relief of pain. For more severe pain, give the patient 100 mg of pethidine IM. Give 2 mg per kg of body weight in a child. Repeat the dosage after four to six hours.
- If the patient has suffered smoke inhalation, transfer him to a hospital immediately. Transfer him immediately if second degree

burns affect more than 10% of his body surface, or 5% if the patient is a child.

- Encourage the patient to take fluids by mouth. In more severe burns, replace with Ringer's lactate or normal saline solution IV the fluid that is lost into the burn. Give a volume of fluid equal to your patient's weight multiplied by the percent of his body burned. Then add 500 ml for an adult and 250 ml for a child. Give this quantity of fluid within eight hours.
- Give the patient 0.5 ml of tetanus toxoid IM.
- Give the patient 400 mg of procaine penicillin G IM.

#### *Third Degree Burns*

- If the patient has inhaled smoke and hot fumes, transfer him to a hospital immediately. He may develop obstruction of his upper airway very rapidly and die unless he receives an artificial airway.
- Transfer patients with any third degree burns to a hospital as quickly as possible. Third degree burns require skin grafting to prevent scarring and deformity. Remember that second and third degree burns are often impossible to differentiate for the first several days after they occur. Therefore, transfer the patient to a hospital if you suspect that he has suffered a third degree burn of the face, genitals, or hands, or if the burn extends across any joint.



- c. Severe burns cause patients to lose fluid rapidly into the tissues under the burn. You must replace fluid to prevent shock. Start an intravenous infusion immediately. Give the patient either Ringer's lactate or normal saline. Calculate the amount to give the patient over the first eight hours by multiplying the patient's body weight by the percent of his body burned. Then add 500 ml for adults and 250 ml for children.
- d. Apply a dressing directly over the burned area. Do not attempt to remove charred clothing. As a result of the heat, charred clothing represents sterile material. Do not apply ointments, lotions, or other substances to the burn.
- e. Relieve pain by giving the patient 100 mg of pethidine IM. Give a child 2 mg per kg of body weight. Repeat this dosage in four to six hours.

#### PREVENTION

- a. Young children suffer from burns most frequently. These burns often occur around the home. When you make home visits, inspect the kitchen area. Note whether preschool children might injure themselves in the kitchen. Discuss this danger with the parents.
- b. Whenever you treat a child for a burn, discuss with the parents the ways that the burn could have been prevented. They can often think of measures that they can take to reduce the risk of further accidents.
- c. Discuss the danger of burns with the parents of children who are beginning to crawl and walk around the house. These children have no fear of burning themselves yet. They need special protection by their parents.

## Trauma to the Eye, Head, Spinal Column, Chest, and Abdomen

### TRAUMA TO THE EYE

#### SYMPTOMS

History of accident involving one or both eyes  
Severe pain  
Loss of vision

#### SIGNS

Roughness on surface of cornea from injury or burn  
Bleeding behind cornea  
Pupils uneven, unreactive to light

#### PATIENT CARE

- a. If the eye has been damaged by a chemical, flush the eye with water or normal saline solution. Continue to flush the eye for at least thirty minutes. The chemical may continue to injure the eye because it sticks to the tissues.
- b. Patch both eyes. Movement of the uninjured eye will cause movement of the injured eye as well. This increases the risk of further injury.
- c. Transfer the patient to a hospital as quickly as possible. Keep him lying down. Treat him for shock, and give him aspirin for pain.

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### TRAUMA TO THE HEAD

#### SYMPTOMS

Loss of consciousness  
Severe headache, nausea, or vomiting  
History of accident

#### SIGNS

Swelling of skin over skull, or laceration with bleeding  
Depressed area, if depressed fracture  
Pink fluid from nose or ears, if fracture of base of skull  
Unconsciousness or change in mental state  
Unequal or dilated pupils  
Deformity of face, if fracture of facial bones or jaw

#### PATIENT CARE

- a. If the patient is unconscious, place him in the recovery position so that he will not choke on his vomit.
- b. Record the patient's pulse and respirations and mental state frequently. These are important signs of the severity of the injury.
- c. If the patient has a deep laceration of the scalp, put a dressing on it before transferring him to a hospital. Do not attempt to clean or repair deep lacerations of the scalp. For treatment of more shallow lacerations,



see Patient Care Procedures for Cleaning Lacerations and for Suturing Superficial Lacerations Using a Simple, Interrupted Stitch.

- d. If the patient has a fracture of the jaw or facial bones, remove any broken teeth or dentures. Support the jaw with a bandage. If the patient is conscious, let him sit and lean forward to allow drainage of blood and saliva during transfer to a hospital. Otherwise, place him in the recovery position.
- e. If the patient has been unconscious for a short while after an accident and wakes up, he has suffered from a concussion. Carefully observe him for at least forty-eight hours before you allow him to return home. If he begins to become drowsy and difficult to arouse after awakening, transfer him quickly to a hospital. His drowsiness may be a sign of bleeding inside of his head.

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## TRAUMA TO THE SPINAL COLUMN

### SYMPTOMS

History of injury to neck or back involving falling from height, blow from heavy object across back, motor vehicle accident, diving accident

Pain in the neck or back

Numbness or weakness in body, arms, or legs

### SIGNS

Inability to move fingers or toes

Inability to feel pin prick on arms or feet

### PATIENT CARE

If you suspect an injury to the neck or back, do not move the patient. Prepare him for transfer to a hospital.

- a. Hold his shoulders and hips while you place a pad between his thighs, knees, and ankles.
- b. Then tie the feet and ankles together with a figure of eight knot.
- c. Tie his knees and thighs together with wide bandages made from sheets, towels, or other cloth.
- d. Obtain a wooden door or wide board that is

as long as the patient. Cover the board with a blanket.

- e. Place the board under the patient as described in the Patient Care Procedure for Placing a Patient on a Stretcher with the Help of Four People, but without Using a Blanket.
- f. Block the patient's head with pillows on either side. The pillows will prevent movement of the head from side to side.
- g. Transfer the patient as gently as possible to a hospital. Gentleness is more important than speed. Further injury to the spinal cord will occur if the spinal column is bent or twisted.

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## TRAUMA TO THE CHEST

### SYMPTOMS

History of serious accident or injury

Severe pain in chest

Difficulty breathing

### SIGNS

Tenderness over broken rib

Air sucking through penetrating chest wound wall

Frothy bubbles around wound on exhalation

Cyanosis of lips and fingernails

Uneven expansion of chest

### PATIENT CARE

- a. Cover a sucking wound of chest immediately. Use your hand. Then substitute a covering that will not allow air to get in.
- b. Make certain that the patient has an open airway and is breathing. Then assess his pulse and respirations and the extent of his injuries.
- c. If one or more ribs are fractured, apply a triangular bandage to the arm on the injured side. Then bandage the arm to the chest wall. This will help to keep the chest wall stable.
- d. If the patient has a weapon or other object protruding from the chest wall, do not remove it. This may make internal bleeding worse. Bandage the wound as it is.



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## TRAUMA TO THE ABDOMEN

### SYMPTOMS

History of blunt or sharp instrument striking abdomen

Severe pain

Nausea and vomiting

Blood in vomit and urine

Loss of consciousness

Difficulty breathing

### SIGNS

Abdominal guarding and rebound tenderness

Signs of shock from blood loss or rupture of organ

Abrasions, lacerations, or puncture wound of abdomen or back

Protruding intestines from large laceration through wall of abdomen

### PATIENT CARE

- a. Prepare the patient for transfer to a hospital.
- b. Start an intravenous infusion and give the patient normal saline solution.
- c. Do not attempt to replace internal organs if they are protruding through the abdominal wall. Cover the laceration with a clean dressing. Keep the dressing moist if the intestines are outside of the abdominal cavity.
- d. Give the patient 600 mg of benzylpenicillin G IV and 500 mg of streptomycin IM before transfer.

# PROBLEMS OF WOMEN

## Common Infections of the Female Reproductive System

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### PELVIC INFLAMMATORY DISEASE

#### SYMPTOMS

Pain in the lower abdomen  
Fever and chills  
Long, heavy menstruation  
Nausea and vomiting  
Foul-smelling vaginal discharge

#### SIGNS

Fever over 38°C  
Tenderness with guarding in the lower abdomen  
Pus in the vagina  
Tenderness when the cervix is moved  
Tender mass on either side of uterus

#### PATIENT CARE

- Place the patient in a semi-seated position to encourage drainage.
- Give her 4.8 g of procaine penicillin G IM in two different injection sites, 2.4 g in one hip and 2.4 g in the other hip. Also, give her 1 g of oral probenecid.
- Follow the IM penicillin with 500 mg of oral ampicillin every six hours for ten days.
- If vomiting is severe, withhold fluids by mouth. Give the patient 1000 cc of 5% dextrose in water and 1000 cc normal saline intravenously every twenty-four hours. If bowel sounds are absent for more than twenty-four hours, refer the patient to a hospital.
- If an abscess is present in the pelvis, refer the patient to a hospital.

#### PREVENTION

- Tell women to avoid intercourse with men with penile discharges.
- Condoms will help prevent problems spread by sexual contact.
- Treat all sexual partners of women with pelvic inflammatory disease with a total of

4.8 g of procaine penicillin G IM in two different sites, 2.4 g in one hip and 2.4 g in the other hip. Also, give them 1 g of oral probenecid.

- Strict adherence to sterile procedures during deliveries and abortions will prevent pelvic infections.

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### NON-SPECIFIC VAGINITIS

#### SYMPTOMS

Discharge from vagina that causes itching  
Burning on urination  
Pain during intercourse

#### SIGNS

Inflammation of external genitals  
Inflammation of walls of vagina  
Red, swollen cervix  
Thick, pussy, white or yellow vaginal discharge

#### PATIENT CARE

- Tell the patient to put one triple sulfa vaginal suppository into the vagina in the morning and one in the evening for three days. Then insert one in the evening for four more days.
- Tell the patient to return for a follow-up examination after two weeks. If the symptoms have not improved, refer the patient to a hospital. If the cervix is still red and inflamed, refer the patient to a hospital.

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### TRICHOMONAL VAGINITIS

#### SYMPTOMS

Vaginal discharge with unpleasant odor  
Possible vaginal bleeding  
Itching around vagina



## SIGNS

- Frothy, yellow-green discharge with foul smell
- Inflammation of external genitals, cervix, and walls of vagina
- Vaginal bleeding in severe cases

## PATIENT CARE

- a. Give the patient 2 g of oral metronidazole in a single dose.
- b. Give the patient's sexual partner 2 g of oral metronidazole in a single dose. Treat the patient and her sexual partner at the same time.
- c. Advise the use of a condom during intercourse until you have examined each sexual partner and found that each is free of symptoms.
- d. Tell the patient and her sexual partner to return for a follow-up examination after two weeks. If the symptoms have not improved, refer the patient to a hospital. If the cervix is still red and inflamed, refer the patient to a hospital.
- e. Do not give metronidazole to pregnant women during the first three months of pregnancy.

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## MONILIAL VAGINITIS

### SYMPTOMS

- Thick, white vaginal discharge
- Burning pain on urination
- Itching around vagina

### SIGNS

- Red, inflamed external genitals
- Thick, white, curd-like discharge from vagina
- Patches of white plaque clinging to walls of vagina
- Bloody oozing when plaque removed

### PATIENT CARE

- a. Instruct the patient to put one nystatin vaginal suppository tab into the vagina in the morning and one in the evening for three days. Then insert one in the evening for seven more days.
- b. If the woman is taking oral contraceptives,

discuss with her other means of contraception, and recommend a change. Monilial vaginitis occurs more frequently with the use of oral contraceptives.

- c. If the woman has diabetes, check on the treatment of her diabetes.
- d. Examine the woman again in two to three weeks. If her symptoms have not improved, refer her to a hospital. If her symptoms have improved, but her cervix remains red and inflamed, refer her to a hospital.
- e. Advise the woman not to have sexual intercourse with any man who has a discharge from his penis.

## Tumors of the Female Reproductive System

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### CANCER OF THE UTERUS OR CERVIX

#### SYMPTOMS

- Bloody discharge
- Heaviness in the pelvis
- Irregular breathing, or any bleeding after menopause

#### SIGNS

- Cervical erosion
- Enlarged uterus
- Blood tinged discharge from the cervix
- Mass in areas on either side of the uterus

#### PATIENT CARE

If you suspect cancer, refer the patient to a hospital.

#### PREVENTION

Early detection and treatment of cancer of the cervix or uterus will prevent death.

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### FIBROID TUMOR IN THE UTERUS

#### SYMPTOMS

- Heaviness in the pelvis
- Increased urination
- Constipation
- Heavy, painful menstrual bleeding

**SIGNS**

Smooth, firm, round tumor felt on bimanual examination  
Tumor that moves with the uterus

**PATIENT CARE**

Refer the patient to a hospital.

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**TUMOR OF THE OVARY**

**SYMPTOMS**

Enlarged abdomen  
Heaviness in the pelvis

**SIGNS**

Smooth, movable, non-tender mass on one side of the uterus

**PATIENT CARE**

Refer the patient to a hospital.

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**BREAST LUMPS**

**SYMPTOMS**

Lump in the breast, usually not painful  
Possible discharge from the nipple

**SIGNS**

Lump usually not tender  
Possible multiple lumps  
Lump attached to the skin, causing a dimple  
Lump attached to nipple, changing shape of nipple  
Enlarged lymph glands in the underarms  
Discharge from the nipple on milking

**PATIENT CARE**

Refer all patients with breast lumps to a hospital.

**PREVENTION**

Early detection and treatment of breast lumps may decrease the number of deaths caused by cancer of the breast.

**Menstrual Cramps, Side Effects of Contraceptives, Menopause, and Atrophic Vaginitis**

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**MENSTRUAL CRAMPS**

**SYMPTOMS**

Dull, cramping pain in lower abdomen or lower back during menstrual period  
Pain that starts a day before menstruation  
Headache, nausea, diarrhea

**SIGNS**

Possible polyp at cervical opening in rare cases

**PATIENT CARE**

- Assure the woman that her menstrual cramps are not a serious health problem.
- Tell her to take 600 mg of aspirin as soon as the pain begins. Tell her to repeat the dosage every four hours, as necessary.
- If the pain is very severe, a short period of rest may be helpful. Mild pressure from a pillow over the lower abdomen may also help.
- If an IUD is in place, encourage the patient to keep it. Only if aspirin does not relieve the discomfort should you discuss removing the IUD and using another kind of contraceptive.
- If you find a tumor such as a polyp on the women's cervix, refer her to a hospital.

**PREVENTION**

Physical activity may prevent severe cramping. Tell women to continue their normal activities during their menstrual periods.

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**SIDE EFFECTS OF CONTRACEPTIVES**

**SYMPTOMS**

Weight gain  
Nausea and vomiting



Low backache  
Vaginal discharge  
Heavy or scant bleeding during menstrual period  
Spotting between menstrual periods

#### SIGNS

Weight gain  
Vaginal discharge  
Infection at site of tubectomy

#### PATIENT CARE

- a. If the patient using oral contraceptives complains of increased weight, reassure her that this problem will clear up in three to six months without treatment. It is usually caused by fluid in her body.
- b. Nausea and vomiting may occur with the use of oral contraceptives. If the problem continues for more than a few weeks, refer the patient to a hospital.
- c. Patients taking oral contraceptives, as well as those with an IUD, may complain of backache. Treat the backache with aspirin and increased rest.
- d. Vaginal discharge may result from an infection in the vagina. Treat the patient with the appropriate drug.
- e. Bleeding may be a problem, especially changes in menstruation. If the patient has heavier bleeding during her periods, give her 300 mg of ferrous sulfate and 1 mg of folic acid three times a day for one month. If the heavy bleeding continues beyond her usual menstrual period, refer her to a hospital immediately.
- f. Treat any skin infection associated with tubectomy as you would treat other skin infections. Remove the sutures and instruct the patient to soak the infected site three times a day with warm saline soaks. Refer the patient to a hospital if she has evidence of a deep infection.

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## MENOPAUSE

#### SYMPTOMS

Scanty, irregular, or heavy menstruation  
Hot flashes

#### SIGNS

With long periods of bleeding, pale conjunctivae, mucous membranes, and nail beds, and other signs of anemia.

#### PATIENT CARE

- a. Encourage the patient to continue a normal, active life.
- b. Tell her she needs good food, fresh air, exercise, and sleep.
- c. Reassure the patient that menopause is a normal, healthy period of life.
- d. Refer a patient with constant or severe bleeding to a hospital.
- e. If any bleeding occurs after menopause is completed, refer the patient to a hospital. The bleeding may be a sign of serious illness.
- f. Treat anemia caused by the bleeding with 300 mg of ferrous sulfate three times a day for at least thirty days.

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## ATROPHIC VAGINITIS

#### SYMPTOMS

Burning pain during intercourse  
Watery or pink vaginal discharge  
Itching after intercourse

#### SIGNS

Older woman  
Slight, watery, pink discharge, with possible trace of blood  
Smooth, pale vaginal walls  
Possible shallow cracks in vaginal walls

#### PATIENT CARE

- a. Tell the patient to put one 0.5 mg diethylstilbestrol vaginal suppository inside the vagina the first and third day of the week for three weeks. Then stop for one week. Then resume the treatment for three weeks. Continue this pattern for three months.
- b. Tell the woman to lie down for thirty minutes after inserting the suppository.
- c. Tell the woman to avoid sexual intercourse until the pain and itching stop.
- d. If the symptoms return, repeat the treatment. Be certain to leave a space of one month between the three-month treatment periods.

# PRENATAL CARE

## Patient Care for Common Conditions during Pregnancy

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### MORNING SICKNESS

Early in pregnancy, a feeling of nausea is very common, especially in the morning. Sometimes, vomiting can become very severe. The woman may become dehydrated as a result of severe vomiting.

#### PATIENT CARE

- a. Advise the patient to eat frequent, small meals that are easy to digest.
- b. Encourage her to avoid spicy or greasy foods, or other foods that seem to make the problem worse.
- c. Refer her to a hospital if the vomiting is severe.

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### HEARTBURN

A burning sensation under the lower end of the breast bone and in the upper abdomen is quite common during pregnancy.

#### PATIENT CARE

- a. Tell the patient that frequent small meals will help to relieve this problem. Tell her that a small snack at bedtime and on rising in the morning may also be helpful.
- b. Stomach acid in the esophagus causes heartburn. Give the patient antacid tablets or liquid to help relieve the discomfort.

---

### CONSTIPATION

Bowel movements that are very hard or infrequent are a common problem during pregnancy, as well as at other times.

#### PATIENT CARE

- a. Encourage the patient to drink at least eight glasses of water or other kinds of fluid every day. The extra fluid will help to make

the stools softer by giving the body additional fluids.

- b. Foods that contain fibers and other undigestible material are an important part of the diet. Urge the patient to eat fresh fruits and vegetables. These foods will increase the size of the stools and help to prevent constipation.
- c. When the patient feels the urge to have a bowel movement, and does not have one at that time, the problem of constipation becomes worse. Regular bowel movements, when the urge to have them is present, are important in preventing constipation. The urge to have a bowel movement usually comes before or after a meal.
- d. If necessary, tell the patient to take mineral oil once a day until the stools become soft. However, advise the patient to use mineral oil for only a short period of time. Mineral oil interferes with the absorption of certain important food substances.

---

### HEMORRHOIDS

Hemorrhoids occur more frequently during pregnancy because of the large uterus, which interferes with normal blood circulation from the lower part of the body.

#### PATIENT CARE

See Patient Care Guide for Hemorrhoids

---

### VAGINITIS

Vaginitis is an inflammation of the vagina that usually causes itching, burning, and discharge.

#### PATIENT CARE

- a. If the patient has a thick, yellow or white, pussy vaginal discharge, see Patient Care Guide for Non-Specific Vaginitis.



- b. If the patient has a yellow-green, frothy vaginal discharge with unpleasant odor, see Patient Care Guide for Trichomonal Vaginitis.
- c. If the patient has a thick, white discharge that attaches to the wall of the vagina in small patches, see Patient Care Guide for Monilial Vaginitis.
- d. If you suspect that the vaginitis results from gonorrhea, see Patient Care Guide for Gonorrhea.
- e. Do not give metronidazole to pregnant women during the first three months of pregnancy.

---

## PAIN OR BURNING ON URINATION

Pain or burning on urination may be a sign of a urinary tract infection.

### PATIENT CARE

See Patient Care Guide for Urinary Tract Infection

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## ANEMIA

Women who have had one or more infants often suffer from anemia. They may be pale if the anemia is severe. The anemia is usually caused by lack of iron. But lack of folic acid may also be responsible.

### PATIENT CARE AND PREVENTION

- a. Treat all pregnant or lactating women with one tablet daily of iron and folic acid.
- b. Give all pregnant or lactating women who appear pale one tablet of iron and folic acid three times a day for at least two months in order to restore the iron that has been lost from the body.

---

## CHRONIC COUGH

If a pregnant or lactating woman coughs daily, especially if she coughs up sputum or blood, refer her to a hospital for careful examination. She may be suffering from tuberculosis.

---

## SWOLLEN, TWISTED VEINS

Veins under the skin of a pregnant woman's legs may become swollen and painful. This problem occurs in the last few months of pregnancy.

### PATIENT CARE

- a. If the veins are red and tender, refer the patient to a hospital.
- b. Encourage the woman to lie down several times during the day with her feet elevated. Lying down will allow the blood to flow out of the veins.
- c. Tell the woman to avoid long periods of standing. Standing causes the blood to collect in the veins and makes the problem worse.
- d. Tell the woman that whenever she sits down, she should put her legs out in front of her and raise them.

---

## BACKACHE

Urinary tract infection during pregnancy may cause low back pain. More commonly, however, low back pain results from the strain of carrying the growing uterus. Backache may become worse as the pregnancy progresses.

### PATIENT CARE

- a. Check to be certain that the patient does not have an infection in her urinary tract.
- b. Urge the patient to stand and walk with good posture. Tell her to keep her back straight and to hold her abdomen in as much as possible. Good posture will help to relieve the strain on the low back muscles.
- c. Show the woman how she should lift heavy objects, keeping her back straight and bending from her knees and hips.
- d. Walking and exercise are very helpful. But tell the woman that if she becomes tired and continues to walk without rest periods, the backache will become worse.
- e. Tell the woman to sleep on a firm mattress.
- f. Tell the woman to apply heat to her lower back with a water bottle or other warm object to relieve some of the pain.

---

## SHORTNESS OF BREATH

Late in pregnancy, the uterus pushes up on the diaphragm and makes breathing more difficult.

### PATIENT CARE

- a. Examine the patient's lungs for signs of congestion. Congestive heart failure also causes shortness of breath.
- b. Show the woman how to stretch her arms above her head and take deep breaths. This exercise will help her lungs to obtain more oxygen.
- c. As soon as the infant is born, the shortness of breath will disappear.

---

## Pregnancy Problems

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### SEVERE ANEMIA IN PREGNANCY

#### SYMPTOMS

Tiredness  
Shortness of breath  
Often a history of previous pregnancies, abortions, or blood loss

#### SIGNS

Pale conjunctivae, mucous membranes, and nail beds  
Signs of heart failure

#### PATIENT CARE

- a. Give the patient 300 mg of ferrous sulfate three times a day throughout pregnancy and lactation.
- b. Give the patient 1 mg of folic acid daily throughout pregnancy and lactation.
- c. Treat the patient for hookworm and malaria, if these problems are present.
- d. If the patient shows signs of heart failure, refer her to a hospital immediately. She should deliver in a hospital.

#### PREVENTION

- a. Give 300 mg of ferrous sulfate and 1 mg of folic acid daily to all women throughout pregnancy and lactation.

- b. Encourage pregnant women to eat foods that are rich in iron, such as green leafy vegetables, meat, and dairy products.
- c. During the last three months of pregnancy, give treatment for malaria to all pregnant women who live where malaria is common.

---

### DIABETES IN PREGNANCY

#### SYMPTOMS

Usually, no specific symptoms  
Possible history of stillbirth or very large newborn infant  
Possible history of bacterial infections

#### SIGNS

Sugar in the urine  
Complications of preeclampsia, excess fluid in the uterus, and bacterial infections

#### PATIENT CARE

Refer a patient with sugar in the urine to a hospital for prenatal care. Use indicator paper to test the patient's urine for sugar. Follow the instructions that come with the indicator paper.

#### PREVENTION

Diabetes cannot be prevented. However, you should urge a woman with diabetes to avoid becoming pregnant, and to seek early prenatal care if she does become pregnant.

---

### HEART DISEASE IN PREGNANCY

#### SYMPTOMS

Shortness of breath  
Tiredness or fatigue  
Swollen legs  
Possible history of rheumatic heart disease

#### SIGNS

Cyanosis  
Pallor  
Heart murmur  
Enlarged liver  
Swollen legs  
Fluid in the chest or abdomen  
Rales



## PATIENT CARE

- Refer the patient to a hospital for evaluation and treatment.
- Tell a woman with heart disease that she should deliver in a hospital.
- Prevent anemia. Anemia increases the risk of heart failure by weakening the heart.

---

## ECTOPIC PREGNANCY

### SYMPTOMS

Sudden onset of severe pelvic pain  
No menstrual period for one or two months

### SIGNS

Tenderness and guarding in lower abdomen  
Bluish, soft cervix  
Bleeding from cervix  
Signs of shock if internal bleeding is severe

### PATIENT CARE

- Transfer the patient to a hospital immediately. The hospital must be prepared to carry out an emergency operation and to give a blood transfusion. Do not perform a bimanual examination if you suspect ectopic pregnancy.
- Treat the patient for shock. Elevate her legs. Keep her warm by covering her with a light blanket. Start an intravenous infusion with a #18 needle, and give 1000 cc of normal saline solution while enroute to the hospital.
- Send her relatives and friends to the hospital with her to donate blood for her.

### PREVENTION

Previous abdominal surgery and pelvic inflammatory disease increase the risk of ectopic pregnancy.

---

## SEPTIC ABORTION

### SYMPTOMS

Vaginal bleeding  
Fever  
Possible attempt to terminate the pregnancy, followed by onset of weakness, fever, and abdominal pain

### SIGNS

Fever and rapid pulse  
Lower abdominal tenderness  
Bluish, soft cervix  
Blood-tinged discharge from open cervix  
Tender, slightly enlarged uterus

### PATIENT CARE

- Remove any foreign objects you find in the cervix or vagina.
- Transfer the patient to a hospital immediately.
- Before transfer, give the patient 1.2 g of procaine penicillin G IM and 1 g of streptomycin IM.
- Treat the patient for shock.

### PREVENTION

- Encourage the regular use of adequate child spacing methods so that unwanted pregnancy does not occur.
- Abortions using sterile instruments will not lead to infections.

---

## PREECLAMPSIA AND ECLAMPSIA IN PREGNANCY

### SYMPTOMS

Headache  
Increased swelling of legs  
History of high blood pressure, visual problems, convulsions in previous pregnancy

### SIGNS

Increased blood pressure, compared to previous visit  
Weight gain greater than 1 kg over two week period  
Swelling of face, hands, feet, or vulva  
Increased reflexes  
Protein in urine  
Convulsions  
Severe edema  
Coma

### PATIENT CARE

- Refer the patient to a hospital if she has high blood pressure or a combination of other symptoms and signs of preeclampsia.

- b. The patient should deliver in a hospital. Her blood pressure may rise rapidly at the time of labor and delivery.
- c. Follow the patient carefully prior to delivery. Tell her to rest in bed several hours a day. Tell her to lie on her side. Record her blood pressure and weight weekly. Transfer her to a hospital early for delivery.
- d. Preeclampsia that progresses to convulsions is eclampsia. Treat eclampsia as a medical emergency. Rapid delivery is the most important means of treating eclampsia. Transfer the woman to a hospital as an emergency if she is not in labor, or is in early labor. If she is already in a late stage of labor, assist in the delivery.
- e. If the patient has had a convulsion, give her up to 8 ml of a 50% solution of magnesium sulfate intramuscularly in each buttock. Give her 4 ml of the solution intramuscularly every six hours until she has delivered and her blood pressure has come down. Do not give magnesium sulfate if the woman is passing no urine, or if she is breathing less than sixteen times per minute or is in a coma.
- f. Also treat the convulsions with diazepam. Give up to 10 mg IV of diazepam, diluted in 10 ml of sterile water for injection, over a ten minute period. Repeat this dosage every fifteen minutes for a total of 30 mg if the convulsions are continuous.

---

## FETAL DEATH

### SYMPTOMS

Fetus stops moving and growing  
History of previous stillbirth, diabetes, or untreated syphilis

### SIGNS

No fetal heart sounds  
Uterus small for the estimated fetal age

### PATIENT CARE

Refer the patient to a hospital for further evaluation and care.

---

## BLEEDING EARLY IN PREGNANCY

### SYMPTOMS

Vaginal bleeding that occurs outside of regular menstrual period  
Woman may not know that she is pregnant  
Possible crampy abdominal pains

### SIGNS

Bluish, soft cervix indicating that woman is pregnant  
With severe bleeding, look for signs of shock  
Uterus enlarged in relationship to length of pregnancy

### PATIENT CARE

- a. If the cervical opening is closed and bleeding is light, advise the patient to remain in bed and to avoid sexual intercourse. Her pregnancy may continue.
- b. If the bleeding is heavy, or the cervix is open, transfer the patient to a hospital immediately.
- c. If the bleeding is severe and the cervix is open, give the patient 0.2 mg of ergonovine maleate IM. At the same time, begin an intravenous infusion and give the patient 1000 cc of normal saline or Ringer's lactate solution while enroute to the hospital.

---

## BLEEDING LATE IN PREGNANCY

### SYMPTOMS

Bright red vaginal bleeding  
Lower abdominal pain

### SIGNS

With severe bleeding, signs of shock  
Tender, hard uterus

### PATIENT CARE

- a. Do not perform a pelvic examination.
- b. Start an intravenous infusion with Ringer's lactate or normal saline solution.
- c. Transfer the patient to a hospital as rapidly as possible. The patient may quickly die of shock from severe blood loss.



## MALARIA IN PREGNANCY

### SYMPTOMS

Fever  
Shaking chills

### SIGNS

Pallor  
Jaundice

### PATIENT CARE

- a. When you suspect malaria, and the patient is pregnant, refer her to a hospital for treatment.
- b. Give the patient one iron and folic acid tablet three times a day for at least two months. Continue with one tablet per day throughout pregnancy and lactation in order to prevent further anemia.

## SICKLE CELL DISEASE IN PREGNANCY

### SYMPTOMS

Sudden onset of fever  
Severe pain in bones and joints  
History of similar attacks

### SIGNS

Pallor  
Jaundice  
Swelling of the joints of hands and feet

### PATIENT CARE

- a. If you suspect that the patient has sickle cell disease, refer her to a hospital for care.
- b. Give the patient 5 mg of folic acid daily throughout pregnancy. This may reduce the frequency of sickle cell crises.
- c. If the patient develops severe pain and fever, transfer her to a hospital immediately. Begin an intravenous infusion and give her Ringer's lactate while en route to the hospital.

# LABOR AND DELIVERY

## Common Problems of Labor and Delivery

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### FETAL DISTRESS

#### SYMPTOMS

None

#### SIGNS

Irregular fetal heart rate below one hundred beats per minute

Green meconium

Increased fetal movement

#### PATIENT CARE

- a. When any of the signs of fetal distress alert you, immediately determine its cause. Correcting the cause may bring the fetus out of distress.
- b. If you cannot correct the cause of the fetal distress, a speedy delivery may prevent damage to the fetus.
- c. If possible, transfer the patient to a hospital for delivery.

---

### MATERNAL DISTRESS

#### SYMPTOMS

None

#### SIGNS

During labor, pulse over 90 beats per minute, or gradual increase in pulse rate

Body temperature over 37.5° C

Blood pressure higher than 140/90

Restlessness or anxiety

Excessive tiredness and weakness

Dehydration

#### PATIENT CARE

- a. Prompt delivery is the quickest way to treat maternal distress. When signs of maternal distress develop, transfer the patient promptly to a hospital.
- b. When the patient suffers from any of the possible causes of prolonged labor, examine her regularly in order to determine whether

she is progressing through labor. If she shows poor progress, transfer her to a hospital immediately.

---

### URINE IN THE BLADDER DURING LABOR

#### SYMPTOMS

Slow progress in labor

No urine passed for several hours

#### SIGNS

Tender, mid-line mass in lower abdomen

#### PATIENT CARE

- a. Encourage the patient to pass urine every three hours during labor.
- b. Have the patient empty her bladder at the beginning of the second stage of labor.
- c. If the patient is unable to pass urine, catheterize her.

---

### PREMATURE LABOR

#### SYMPTOMS

Labor that begins before due date

#### SIGNS

Active labor

Fetus smaller than expected for term infant

#### PATIENT CARE

- a. Transfer the patient to a hospital, if possible.
- b. With severe bleeding, start an IV and begin normal saline drip before transferring the patient to a hospital.
- c. If labor is active with no bleeding, tell the patient to lie down quietly. Give her 30 mg of oral phenobarbital. This may interrupt the labor. If it does not, she will deliver the baby



prematurely. Do not repeat the dosage, because phenobarbital will reduce the infant's ability to breath.

---

## INCOMPLETE FETAL ROTATION

### SYMPTOMS

Prolonged second stage of labor

### SIGNS

Fully dilated cervix

Fetal head low in the pelvis

Sutures of fetal head remain in horizontal rather than vertical position

### PATIENT CARE

Transfer the patient to a hospital immediately upon detection of this problem.

---

## SMALL OR ABNORMALLY SHAPED PELVIS

### SYMPTOMS

Prolonged labor

### SIGNS

Fetus remains high in the pelvis in spite of hard labor

Woman may be very short or have pelvic deformity

Diagnosis made on the basis of pelvic examination

### PATIENT CARE

Transfer the patient to a hospital as quickly as possible when you suspect this problem.

---

## EARLY RUPTURE OF THE BAG OF WATERS

### SYMPTOMS

Sudden rush of fluid from vagina before labor begins

### SIGNS

Fluid that leaks from vagina

Fluid usually clear, pale, or straw-colored

Fluid possibly green or foul-smelling in cases of infection or fetal distress

### PATIENT CARE

- If the patient delivers within twenty-four hours, no other special care is required.
- If labor has not begun within twelve hours after rupture of the membranes, give the patient intramuscular ampicillin. See Guide for Calculating Antibiotic Dosages.
- If the patient has a fever, or foul-smelling or greenish meconium or fluid is present, transfer her to a hospital immediately.

---

## RETAINED PLACENTA

### SYMPTOMS

Bleeding during postpartum period

### SIGNS

Placenta not delivered within sixty minutes after infant's delivery

Possible missing piece of placenta, which has been torn off and remains within the uterus

Postpartum bleeding caused by retained placenta

### PATIENT CARE

- The placenta usually delivers without assistance. However, if it does not deliver within sixty minutes after delivery of the infant, you must consider that the patient has a retained placenta.
- Following the delivery of the infant, observe the mother carefully for the signs of placental separation. These include lengthening of the umbilical cord, sudden rush of blood, change in shape of the uterus as it becomes firmer and rounder, and upward movement of the uterus toward the umbilicus as the placenta slides downward.
- If placental separation has not occurred in thirty minutes following the birth of the infant, you may attempt to assist in the separation of the placenta. Gently and steadily pull downward on the umbilical cord. At the same time, gently hold the uterus with your other hand so that you do not pull the uterus downward into the birth canal. Do not massage the uterus during this time.
- If this procedure does not lead to placental separation and delivery, and the patient is

not losing blood from her vagina, transfer her to the hospital for removal of the placenta.

- e. If the patient is bleeding from the vagina and has a retained placenta, you must manually remove the placenta. Follow Patient Care Procedure for Manually Removing a Placenta.

## PROLONGED LABOR

### SYMPTOMS

Active labor pains for as long as twenty-four hours, without delivery

### SIGNS

Incomplete fetal rotation  
Small, or abnormally shaped pelvis  
Urine in the bladder  
Face-up presentation  
Face presentation  
Breech presentation  
Transverse presentation

### PATIENT CARE

- a. Attempt to identify the cause for the prolonged labor and correct it.
- b. If the labor does not progress rapidly after you have attempted to correct the cause, transfer the patient to a hospital as quickly as possible. Prolonged labor leads to maternal distress and to fetal distress and death.

## BREATHING PROBLEMS OF A NEWBORN

### PATIENT CARE

- a. If the infant is pink but struggling to breathe, gently clean out the nose and mouth with a bulb syringe mucus extractor. This will usually cause the infant to start breathing normally.
- b. If the infant is pale, limp, and not breathing, gently clean out the nose and mouth with a mucus extractor. Place the infant flat on a table with your hand under his neck and with his head tilting back on the table. This position will straighten out his airway. Place

your mouth over the infant's nose and mouth and gently puff air into his lungs with the air in your cheeks. Remove your mouth between each breath, and observe the infant's chest to see whether it becomes smaller. Gently puff air into his lungs about twenty times per minute until the infant starts to breathe on his own. Continue this procedure until the infant is breathing or shows no evidence of life.

- c. If the infant is breathing irregularly and not deeply, place the infant flat on his back. Place your hand under the infant's neck and allow the head to tilt backwards onto the table. This position will straighten out the infant's airway. Gently bend the legs up onto the infant's chest and then straighten them out. Continue this in a regular rhythm, about twenty times per minute, until the infant's breathing improves.
- d. Always handle a newborn gently and keep him warm. Never slap a newborn. Never use very hot or very cold water on a newborn. Never roughly rub or bend a newborn.
- e. If a newborn continues to have trouble breathing, transfer him to a hospital.

## Abnormal Presentations during Delivery

### FACE-UP PRESENTATION

#### SYMPTOMS

First stage of labor longer than normal

#### SIGNS

Depression just below the woman's umbilicus, where you would normally feel the infant's back

Infant's anterior fontanelle facing toward the front rather than toward the back

#### PATIENT CARE

- a. Labor should progress normally if the infant's head flexes as the infant descends through the birth canal.
- b. If the first stage of labor is prolonged, transfer the patient to a hospital. Do this before the infant or the mother begins to show signs of distress.



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## FACE PRESENTATION

### SYMPTOMS

Prolonged first stage of labor

### SIGNS

Unable to feel the smooth, round part of infant's skull during vaginal examination  
See or feel the infant's face

### PATIENT CARE

- Be careful not to harm the infant's eyes during the vaginal examination.
- The infant's chin must deliver first in a face presentation. To help the chin to deliver first, gently hold back on the infant's forehead until the chin delivers.
- Perform an episiotomy when the cervix is fully dilated. See Patient Care Procedure for Performing and Repairing an Episiotomy.
- If normal delivery does not occur rapidly after full dilation of the cervix, transfer the patient to a hospital.

On vaginal examination, arm, leg, or shoulder present at the cervix  
Possible maternal distress with prolonged labor

### PATIENT CARE

- The fetus cannot deliver when in the transverse position. Continued labor will lead to death of both fetus and mother.
- If you detect a fetus in the transverse position, refer the patient to a hospital prior to labor. Transfer her immediately when you discover this problem after labor has begun.

---

## MULTIPLE PREGNANCY

### SYMPTOMS

Often no symptoms  
Woman growing larger than normal for single pregnancy

### SIGNS

Feel two or more heads, or have difficulty in determining the position of the fetus, on examination of the uterus  
Uterus larger than expected for stage of pregnancy  
Two or more fetal heart sounds

### PATIENT CARE

- Refer any patient with multiple pregnancy to a hospital.
- If labor has already begun, or the patient has already delivered one infant, carry out the delivery following the Patient Care Procedure for Assisting Delivery in a Multiple Pregnancy.

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## Emergencies during Labor and Delivery

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### PROLAPSE OF THE CORD

#### SYMPTOMS

None

#### SIGNS

Rope-like, slippery cord protruding through cervix during first or second stage of labor

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## BREECH PRESENTATION

### SYMPTOMS

None

### SIGNS

Fetal head in the upper abdomen and fetal buttocks in lower abdomen  
Feel infant's buttocks, or one or both legs, on vaginal examination

### PATIENT CARE

- When you suspect that the fetus is in a breech position, transfer the patient to the hospital for delivery.
- If the patient is already in labor, deliver her according to the Patient Care Procedure for Assisting Delivery in a Breech Presentation.

---

## TRANSVERSE PRESENTATION

### SYMPTOMS

Prolonged labor without progress

### SIGNS

On abdominal examination, neither the head nor the buttocks are found in the pelvis

### PATIENT CARE

- a. Prolapse of the cord is more likely to occur with premature rupture of the membranes, breech or transverse presentation, or multiple pregnancy. Look frequently for evidence of prolapsed cord during the progress of labor in these conditions.
- b. If delivery of the infant within a few minutes is not possible, attempt to slip the cord back up into the uterus. If this is not possible, place the woman on her knees with her head down. This position will help to reduce fetal pressure on the cord. Transfer the patient to a hospital as quickly as possible.
- c. If the cord is pressed between the fetus and the mother's pelvis, and the infant is not delivered in a few minutes, the fetus will die. Prepare the family for this outcome.

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## RUPTURE OF THE UTERUS

### SYMPTOMS

During hard labor, woman suddenly stops having pain with her contractions  
Contractions stop

### SIGNS

Contractions absent  
Evidence of blood loss, with shock  
Signs of fetal distress

### PATIENT CARE

- a. Rapidly transfer the patient to a hospital for surgery and blood transfusion.
- b. Start an intravenous infusion and give normal saline solution while the patient is on the way to the hospital.

---

## PREECLAMPSIA AND ECLAMPSIA DURING LABOR

### SYMPTOMS

Headache  
Increased swelling of legs  
History of high blood pressure, visual problems, convulsions in previous pregnancy

### SIGNS

Increased blood pressure, compared to previous visit  
Weight gain greater than 1 kg over two week period  
Swelling of face, hands, feet, or vulva  
Increased reflexes  
Protein in urine  
Convulsions  
Severe edema  
Coma

### PATIENT CARE

- a. Refer the patient to a hospital if she has high blood pressure or a combination of other symptoms and signs of preeclampsia.
- b. The patient should deliver in a hospital. Her blood pressure may rise rapidly at the time of labor and delivery.
- c. Follow the patient carefully prior to delivery. Tell her to rest in bed several hours a day. Tell her to lie on her side. Record her blood pressure and weight weekly. Transfer her to a hospital early for delivery.
- d. Preeclampsia that progresses to convulsions is eclampsia. Treat eclampsia as a medical emergency. Rapid delivery is the most important means of treating eclampsia. Transfer the woman to a hospital as an emergency if she is not in labor, or is in early labor. If she is already in a late stage of labor, assist in the delivery.
- e. If the patient has had a convulsion, give her up to 8 ml of a 50% solution of magnesium sulfate intramuscularly in each buttock. Give her 4 ml of the solution intramuscularly every six hours until she has delivered and her blood pressure has come down. Do not give magnesium sulfate if the woman is passing no urine, or if she is breathing less than sixteen times per minute or is in a coma.
- f. Also treat the convulsions with diazepam. Give up to 10 mg IV of diazepam, diluted in 10 ml of sterile water for injection, over a ten minute period. Repeat this dosage every fifteen minutes for a total of 30 mg if the convulsions are continuous.



---

## BLEEDING DURING LABOR

### SYMPTOMS

None

### SIGNS

Sudden onset of bright red vaginal bleeding

### PATIENT CARE

- a. Bleeding from the vagina during labor is a very serious condition that often leads to shock, with death of both the mother and the infant.
- b. Transfer the patient to a hospital as quickly as possible.
- c. Start an intravenous infusion and give the patient normal saline solution at a rapid rate while on the way to the hospital.
- d. Be sure to bring the patient's relatives to the hospital so that they can donate blood for the patient.

---

## POSTPARTUM BLEEDING

### SYMPTOMS

Bleeding from vagina during the first twenty-four hours after delivery

### SIGNS

Low blood pressure, rapid pulse, cold and clammy skin, pallor, and other signs of shock from blood loss

Soft, boggy uterus on palpation through the abdominal wall, when the uterus has failed to contract properly

Torn or incomplete placenta when a piece of placenta remains inside the uterus, causing the bleeding

Laceration or tear of cervix or lower birth canal

### PATIENT CARE

- a. Give the patient 0.2 mg ergonovine maleate IM immediately. Repeat this dosage in two hours if bleeding continues.

- b. If the uterus feels soft and boggy, use bimanual compression of the uterus to stop the bleeding and bring about contraction of the uterus. Do not lose any time, but wash your hands thoroughly and put on sterile gloves if available. Then insert one hand into the vagina and press it upward and toward the abdominal wall, with your palm facing upward. At the same time, press downward on the uterus through the wall of the abdomen with your other hand. This pressure will compress the uterus between your two hands. When the uterus is between your hands, massage it to help bring about contraction.
- c. Begin an intravenous infusion. Give the patient normal saline or Ringer's lactate intravenously. Give her up to 1000 ml over a three to four hour period if she shows any signs of shock.
- d. If bleeding continues after the uterus has contracted, transfer the patient to a hospital as quickly as possible. Accompany her to the hospital so that you can continue to massage the uterus and maintain the intravenous infusion on the way. If the bleeding is caused by a laceration or retained placenta, the patient will require further treatment at the hospital.

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## EMERGENCIES IN A NEWBORN

The following problems require immediate transfer of a newborn to a hospital for care.

Difficulty breathing

Blueness or pallor

Yellow color of skin within twenty-four hours of birth

Continuous vomiting

No bowel movement in first twenty-four hours of life, or no opening at anus

Any unusual behavior such as rolling eyes, jerky movements, constant crying, and irritability

# POSTNATAL CARE

## Postnatal Problems

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### SWOLLEN BREASTS

#### SYMPTOMS

Throbbing, painful breasts  
Usually present third day after delivery

#### SIGNS

Tight, shiny skin over breasts  
Visible veins in breasts  
Very firm, tender breasts  
No fever or other signs of inflammation or infection

#### PATIENT CARE

- Encourage the mother to begin breast-feeding as soon after delivery as possible.
- Encourage her to breast-feed her infant every two to three hours. Tell her to use both breasts at each feeding. However, tell her to start the breast-feeding on the breast opposite from the one that the infant finished breast-feeding on at the previous feeding.
- If the areas around the nipples are swollen, show the mother how to express the milk from her nipples with her fingers. Expressing the milk will allow the infant to get a better hold on the nipple.
- Tell the mother to support the breasts with a bra or binder between feedings.
- Tell her to dry the nipples and massage them gently after each feeding so that they will remain firm and free of cracks.

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### LACK OF BREAST MILK

#### SYMPTOMS

Infant cries and acts irritable  
Not satisfied after breast-feeding

#### SIGNS

Poor weight gain

#### PATIENT CARE AND PREVENTION

- Encourage the mother to begin breast-feeding her infant immediately after deli-

very. The fluid that comes from the breasts during the first few days is extremely valuable for the infant's health.

- Tell the mother to breast-feed the infant every two to three hours. The infant's sucking will stimulate the production of milk.
- Complete emptying of the breast stimulates milk production. To accomplish this, tell the mother to empty alternate breasts completely at each feeding.
- Tell the mother to give her infant no other food or milk during the first four months of life. If the infant receives other food, he will reduce his breast milk consumption.
- Check to make sure that the mother is not taking oral contraceptives. If she is, urge her to use a different method of family planning. Oral contraceptives can reduce milk production.
- Urge the mother to eat extra food during lactation. Milk production requires extra calories and extra protein. The mother must replace the calories and protein to remain healthy and continue to breast-feed.
- Encourage the mother to supplement her diet with 300 mg of ferrous sulfate and 1 mg of folic acid daily during the period of lactation.

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### HEMORRHOIDS

#### SYMPTOMS

Pain and itching at the anus  
Possible bleeding from anus

#### SIGNS

Swollen, hard, bluish blood vessels near anus

#### PATIENT CARE

- Advise the patient to use a lignocaine and hydrocortisone rectal suppository two to three times a day after a bowel movement.

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- b. Urge the patient to drink extra water each day. If the stools are very hard, tell her to take two to three teaspoons of mineral oil twice a day in order to make the stools softer. Tell her to continue to take the mineral oil until the pain has gone away. However, tell her to stop taking mineral oil as soon as possible.
- c. While the hemorrhoids are painful, advise the patient to sit in warm water for up to thirty minutes three times a day. Warm water soaks will relieve much of the pain and discomfort.
- d. If the hemorrhoid is very hard and painful, or if it does not improve within a few days, refer the patient to a hospital. Sometimes, the hemorrhoid will require surgical removal.

## Other Postnatal Problems

### CRACKS ON NIPPLES

#### SYMPTOMS

Sharp pain in nipple when infant sucks

#### SIGNS

Small crack on nipple, with bleeding

#### PATIENT CARE

- a. Tell the mother not to feed her infant from the affected breast for twenty-four hours.
- b. Show the mother how to express milk from the breast manually and to feed the milk to her infant with a cup and spoon.
- c. Tell the mother to keep the nipple clean and dry. Tell her to expose it to the air for at least thirty minutes every few hours.

#### PREVENTION

- a. During the last two months of pregnancy, encourage the mother to massage the nipples with some cold water daily. This cold water massage will toughen the skin.
- b. Show the mother how to hold her infant so his mouth is completely over the nipple and against the areola of the breast. This position will help prevent sore nipples.

### BREAST ABSCESS

#### SYMPTOMS

Painful swelling of breast

Later, pus may drain from abscess

#### SIGNS

Fever and chills

Warm, firm, tender, reddened area on affected breast

Later, soft, yellow area that becomes tense and bursts

#### PATIENT CARE

- a. Tell the mother to continue to breast-feed from the affected breast. Continued breast-feeding will aid healing.
- b. Tell the mother to apply wet, warm compresses to the affected area for thirty minutes four times a day.
- c. Treat the mother with antibiotics. Give her 500 mg of oral ampicillin every six hours for seven days.
- d. If the abscess develops a soft yellow center, see Patient Care Procedures for Opening and Draining Boils and Abscesses.
- e. Continue to soak the abscess until the drainage stops. Dress the wound with clean gauze between soaks.

#### PREVENTION

Abscesses may develop from cracks on nipples. Treat cracks on nipples properly.

### PUERPERAL SEPSIS

#### SYMPTOMS

Fever and chills

Foul-smelling vaginal discharge

History of recent delivery, often prolonged or complicated

#### SIGNS

Fever and rapid pulse

Tenderness in lower abdomen

Foul smelling vaginal discharge, often with blood and pus

Very tender, soft uterus

## PATIENT CARE

- a. If possible, transfer the patient immediately to a hospital.
- b. If you cannot immediately transfer the patient to a hospital, treat her as follows. Place the woman at rest in a semi-seated position. Give her 1.2 g of procaine penicillin G IM every twelve hours for seven days. Give her 500 mg of streptomycin IM every twelve hours for seven days.

Encourage the patient to drink one to two glasses of fluid at least every two hours. If the patient cannot take fluids by mouth, or is vomiting, begin an intravenous infusion. Give 1000 cc of 5% dextrose in 1/2 normal saline and 1000 ml of 5% dextrose in water every twenty-four hours.

- c. If the patient does not show signs of improvement within twelve hours, you must transfer her to a hospital immediately.

## PREVENTION

- a. Wash your hands thoroughly before carrying out any pelvic examination.
- b. Carry out a pelvic examination only when absolutely necessary.
- c. Wash the woman's pelvic area thoroughly before delivery or pelvic examination.
- d. Sterilize all equipment that you use during delivery.

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## UNREPAIRED PERINEAL TEARS

### SYMPTOMS

History of recent delivery with large infant or prolonged labor

Possible application to wound of traditional medicine such as oil, leaves, herbs, or animal dung

### SIGNS

Large tear possibly infected or covered with traditional medicines

With infection, fever, chills, and generalized infection

## PATIENT CARE

- a. If you find evidence of generalized infection, treat the patient as if she has puerperal sep-

sis. If the wound has been packed with unclean material, give the patient tetanus toxoid in addition to penicillin and streptomycin.

- b. If you find only local infection of the wound, tell the patient to sit in a tub of warm salt water for thirty minutes three to four times a day.
- c. After several days, refer the patient to a hospital for repair of the tear. Be sure the wound is clean and free of infection before you refer the patient to a hospital.

## PREVENTION

You can prevent perineal tears by using an episiotomy when the infant's head is very tight in passing through the vagina.

## CARE OF EPISIOTOMY OR PERINEAL TEAR

- a. Tell the patient to keep the sutured area or tear clean and dry. Tell her that she must clean herself with soap and water after each bowel movement. Teach her the importance of cleaning herself from the front to the back. This method of cleaning herself will prevent contamination of the perineum with stool.
- b. If the tears or sutured areas are painful or swollen, tell the patient to sit in a tub of warm water for at least twenty minutes three times a day. Tell her that she may add a little salt to the water. Tell her to dry herself with a clean towel and to expose the area to the air for thirty to sixty minutes after she sits in the warm water.
- c. During postnatal examination, examine the scar carefully. If you note a shallow drainage site, look for evidence of an unabsorbed suture, and remove the suture. If you note a deeper drainage site, refer the patient to a hospital for evaluation and care.

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## MOTHER WITH A DEAD BABY

When the infant dies at birth, or shortly after birth, the mother often becomes depressed. She may feel that the infant's death is her fault.

## PATIENT CARE

Encourage the mother to express her feelings. Talk with her and her family. Reassure them



that these feelings are normal and good. Support her in her plans to become pregnant again, if that is her choice. Refer the woman to a hospital if the infant death may be related to some illness or abnormality of the mother.

## Common Problems of the Newborn

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### CRADLE CAP

#### SIGNS

Scaly, yellowish, greasy patches on the scalp  
Redness surrounding patches  
Possible weepy lesions behind ears, and in folds of neck, arms, and perineum

#### PATIENT CARE

- Tell the mother to scrub the infant's scalp with soap and water. Then tell her to apply 5 to 10 ml of 2.5% selenium sulfide lotion and rub the lotion into the scalp with warm water. Tell her to leave the lotion on the scalp for at least fifteen minutes, then remove it completely.
- Tell the mother to apply the lotion twice weekly for two weeks and then weekly for two months. Tell her not to apply the lotion to moist or weepy areas of skin.
- Warn the mother not to let the lotion get into the infant's eyes. Warn her to store the lotion out of reach of children. Tell her the lotion is poisonous if swallowed.

### DIAPER RASH

#### SIGNS

Very red skin in perineal area  
Macular, papular, or vesicular rash  
Weepy and crusty rash

#### PATIENT CARE

- Tell the mother to wash the infant's genital area gently with cloth and soapy water each time the infant has a bowel movement. Tell her to rinse the area with clean water.

- Tell the mother to keep the infant's genital area exposed to air as much as possible.
- Tell the mother that she must remove the infant's diapers immediately after the infant soils them.

## COLD IN THE NEWBORN

#### SYMPTOMS

Mother notices infant has runny nose  
Infant is irritable and has difficulty nursing

#### SIGNS

Clear discharge from the nose  
No fever

#### PATIENT CARE

- Show the mother how to suck mucus from her infant's nose with a rubber syringe just before feeding time.
- Show the mother how to put nose drops into her infant's nose after sucking the mucus from the nose. Use 0.25% phenylephrine hydrochloride nose drops. Tell her to put two to three drops in each nostril just before feeding time, up to three times a day for three days. This will help the infant breast-feed more comfortably.
- Do not use antibiotics. They will not be effective.

## SIMPLE JAUNDICE IN THE NEWBORN

#### SYMPTOMS

Yellow discoloration of skin

#### SIGNS

Yellow discoloration of eyes  
Yellow discoloration of skin  
No other signs of illness

#### PATIENT CARE

- Tell the mother to breast-feed her infant frequently to ensure that he receives enough fluids to help the body clear the jaundice.
- Reassure the mother. Tell her that her baby's skin color will gradually fade. Tell her the baby will suffer no ill effects.



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## **SIMPLE SWELLING OF THE SCALP AND BLEEDING INTO THE SCALP IN THE NEWBORN**

You or the infant's mother may note a swelling of the scalp at the time of birth, or shortly thereafter. A soft swelling over a large area of the scalp results from fluid in the scalp tissues. Soft swelling will become smaller and disappear within twenty-four to forty-eight hours.

In contrast, a harder swelling that is usually limited to one side of the scalp results from bleeding between the skull and the scalp tissue. This swelling has a soft center and distinct edges. It will last for several weeks to a month or more. The mother may have had a difficult and prolonged labor. Or a vacuum extractor or forceps were used during delivery.

### **PATIENT CARE**

- a. Reassure the parents that the simple swelling will disappear slowly.
- b. When the swelling results from bleeding into the scalp, the infant's brain may be damaged. Look for signs of brain injury, such as a high, shrill cry; fits; coma; or vomiting. Transfer the infant to a hospital if he has any of these signs.

## **Other Problems of the Newborn**

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### **FRACTURES IN THE NEWBORN**

After prolonged labor, or an abnormal presentation, look for signs of a fracture. Feel each clavicle for evidence of swelling or deformity. Move each arm and leg. Observe the infant to see if he moves both arms and legs by himself. Failure to move an extremity is a sign of fracture or nerve injury.

### **PATIENT CARE**

- a. If you detect a possible fractured clavicle or arm, splint the arm to the side of the chest and transfer the infant to a hospital.
- b. If you detect a possible fractured leg, splint the fractured leg to the other leg. Transfer the infant to a hospital for further care.

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## **DIARRHEA IN THE NEWBORN**

Normal newborns may have one soft stool after each feeding. If the stools are watery or more frequent, the infant has diarrhea. He will quickly develop signs of dehydration, including sunken fontanelle, dry mucous membranes, and tenting of the skin.

### **PATIENT CARE**

- a. Encourage the mother to continue breast-feeding her infant. Breast-feeding is essential to the infant's health.
- b. Tell the mother to give the infant boiled water from a clean cup and spoon between breast-feedings.
- c. If the infant shows signs of dehydration, transfer him to a hospital as quickly as possible. The infant may require intravenous fluids.
- d. Tell the mother to avoid giving the newborn anything by mouth except breast milk. Tell her that if water is necessary, she must boil it and give it to the newborn by cup and spoon. Tell her never to use a bottle.

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## **FEVER IN THE NEWBORN**

Fever in the newborn is a very serious sign. Observe the infant carefully for other signs of infection such as a red umbilicus or bulging fontanelle. Look also for vomiting, weak sucking, diarrhea, irritability, sleepiness, fits, low body temperature, difficulty breathing, jaundice, pallor, and cyanosis.

### **PATIENT CARE**

- a. Transfer a newborn with fever as quickly as possible to a hospital.
- b. If you suspect that the newborn infant has an infection, give him 250 mg of ampicillin before transferring him to a hospital.

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## **LOW BIRTH WEIGHT**

Infants who weigh less than 2500 grams at birth often have been born earlier than expected. Or their mothers were ill or poorly



nourished during the pregnancy. A twin often weighs less than 2500 grams at birth. The smaller the infant at birth, the greater the chance that he will not survive through the newborn period.

#### PATIENT CARE

- a. Immediately after birth, keep the infant warm by wrapping him in a blanket. Small infants cannot keep their body temperature normal without help.
- b. Encourage the mother to begin breast-feeding her infant within two to six hours after birth.
- c. If the infant is too small or weak to breast-feed, refer the infant and his mother to a hospital for care.
- d. If the infants are twins, teach the mother to give twin A the first chance to feed at one feeding, and twin B the first chance to feed at the next feeding. Tell her to continue to alternate feedings in this manner.
- e. If the infant has not gained weight after one week, refer the mother and her infant to a hospital for further examination and advice.

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## ABNORMAL JAUNDICE IN THE NEWBORN

### SYMPTOMS

Yellow skin and eyes

### SIGNS

Yellow skin on first day of life or after sixth day

Deep yellow color

Yellow soles or palms

Jaundice lasting more than one week

Fever or lethargy

Poor suck

Irritability

#### PATIENT CARE

Transfer a newborn with abnormal jaundice to a hospital for tests and treatment. Untreated forms of abnormal jaundice can cause mental retardation, and may also cause death.

#### PREVENTION

Refer a woman who has had one baby with abnormal jaundice to a hospital for prenatal care.

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## A NEWBORN WITHOUT A MOTHER

When the mother dies at the time of birth, or is unable to care for her infant, the infant is in great danger. He needs both the warmth and care of his mother, and the breast milk that she can provide.

#### PATIENT CARE

- a. Help to find a substitute mother for the infant. The infant needs to be held and cradled frequently.
- b. Ideally, a woman who has been breast-feeding recently can become a wet-nurse for the infant. Even a woman who has not been pregnant can begin to provide breast milk through constant sucking, forced fluids, and a strong intention to do so.

# DISEASES OF INFANTS AND CHILDREN

## Problems of the Newborn

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### TETANUS OF THE NEWBORN

#### SYMPTOMS

Inability to suck

Convulsions

Umbilicus cut or circumcision performed with unclean instruments within past week

#### SIGNS

Jaws in spasm

Convulsions or fits set off by handling or noise

Rigid body

#### PATIENT CARE

- Transfer a newborn with signs of tetanus infection to a hospital as quickly as possible.
- Before transfer, give the infant 200 mg of procaine penicillin G IM.
- To sedate the infant and reduce the likelihood of convulsions, give the infant 10 mg of amobarbital sodium IM before transfer.

#### PREVENTION

- Give every pregnant woman two injections of tetanus toxoid four to six weeks apart. Give these injections during the last three months of pregnancy.
- Teach birth attendants to wash their hands carefully and to use sterile equipment at deliveries. Teach them to cut and tie the umbilical cord with a sterile knife and cord.
- Teach those who perform circumcisions to use sterile instruments. Teach them to apply clean dressings to the penis.

Umbilicus possibly cut with unclean instruments

History of complication of labor or delivery

#### SIGNS

Irritability or drowsiness

Weakness and floppiness

Redness or foul odor around umbilical stump

Jaundice

Fever or low body temperature

Signs of pneumonia or difficulty breathing

#### PATIENT CARE

- When you suspect that an infant has septicemia, begin antibiotics immediately. Use ampicillin if it is available. Give the infant 25 mg of ampicillin per kg of body weight IM every six hours for ten days.
- Transfer the infant to a hospital as quickly as possible. If this is not possible, continue treatment at the health center.
- Wrap the infant in a blanket to keep him warm. Infants with septicemia have difficulty keeping their body temperature from falling.
- Continue to feed the infant. If he is too weak to suck, help the mother to express her breast milk. See Patient Care Procedure for Teaching Mothers How to Express Breast Milk. Give the infants the milk with a cup and spoon. Alternatively, use a nasogastric tube. See Patient Care Procedure for Feeding a Baby by Nasogastric Tube.
- The baby requires at least 40 ml to 50 ml of fluid every three hours. If the mother produces less than 40 ml to 50 ml of milk, tell her to supplement the feeding with sugar water. Tell her to boil one-half liter of water with three tablespoons of sugar, and to cool the liquid before giving it to the infant.

#### PREVENTION

- Septicemia is often the result of a contaminated umbilical stump. Teach birth atten-

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### SEPTICEMIA IN THE NEWBORN

#### SYMPTOMS

Sucks poorly

Vomiting

Fits or convulsions



dants to cut the umbilicus with a sterile knife or scissors, to tie it with sterile cord, and to keep it clean.

- b. The umbilical stump should be exposed to the air to stay dry. Teach the infant's mother to paint the stump with 70% alcohol or gentian violet twice a day.
- c. Follow carefully infants who have had a difficult delivery or who have a low birth weight. Infants who are born more than twelve hours after the bag of waters has ruptured are much more likely to become infected than are other infants. Examine these infants daily for the first week of life.

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## INFECTED UMBILICAL CORD

### SYMPTOMS

Foul smelling odor

### SIGNS

Wet, draining stump

Red skin around the stump

Foul odor

### PATIENT CARE

- a. Give the infant 100 mg of oral ampicillin every six hours for five days.
- b. If possible, transfer the infant to a hospital for further care. An infected umbilicus may quickly lead to infection throughout the body.

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## BLEEDING UMBILICAL CORD

### SYMPTOMS

A small amount of bleeding occurs when the umbilical cord falls off

A larger amount of bleeding may be very dangerous

### PATIENT CARE

- a. If the umbilical stump begins to bleed, press a sterile gauze dressing over the cord and keep pressure on it.
- b. If the bleeding continues for more than a few minutes, transfer the infant to a hospital. Keep pressure on the dressing over the cord while you transfer the infant to the hospital.

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## GONOCOCCAL CONJUNCTIVITIS IN THE NEWBORN

### SYMPTOMS

Red eyes two to five days after birth

No eye care after birth

History of gonorrhea or vaginal discharge in mother

Possibly no symptoms in mother

### SIGNS

Inflamed red eyes

Pussy discharge from eyes

### PATIENT CARE

- a. Boil one-half liter of water with a pinch of salt and cool the solution. Then use a syringe filled with the salt solution to flush the infant's eyes. Flush the eyes from the nose outward toward the ear. Continue to flush the eyes until you have completely removed the discharge.
- b. Apply penicillin G eye ointment to the eye after you have flushed out the discharge. See Patient Care Procedure for Application of Eye Ointment or Eye Drops.
- c. Flush the eyes and apply penicillin G eye ointment every two hours for the first forty-eight hours. Frequent application is necessary because the infection washes out the medication rapidly. After forty-eight hours, put the medication into each eye every six hours until the eyes are normal.
- d. Give the infant 100 mg of procaine penicillin G IM every twelve hours for four days.
- e. Look carefully at the infant's cornea daily. If you note any roughness or evidence of corneal ulcer, refer the infant to a hospital immediately.
- f. Treat both parents for gonorrhea. Explain to the parents that the infant became infected from the mother's birth canal.

### PREVENTION

Teach birth attendants to routinely place two drops of 1% silver nitrate solution in each of the infant's eyes at the time of birth. This is the most effective method of preventing eye infection. Silver nitrate will cause some redness of the conjunctivae for several days.

## THRUSH IN THE NEWBORN

### SYMPTOMS

Infant may suck poorly  
 White patches in infant's mouth  
 Mother may have itchy vaginal discharge  
 Older infant may have received antibiotics

### SIGNS

White or gray patches on tongue and mucous membranes of the mouth  
 Raw, bleeding membranes when patches are scraped off

### PATIENT CARE

- Swab the white patches in the infant's mouth with 1% gentian violet or nystatin oral suspension. For nystatin, use 1 ml four times a day. After you have swabbed the lesion, give the remainder of the nystatin by mouth. Demonstrate this treatment to the infant's mother. Tell her to continue the treatment until the lesions have disappeared.
- If a newborn develops thrush, treat the mother with nystatin vaginal suppositories. Instruct the mother to insert one tablet twice a day for three days, and then one daily for four more days. Explain to the mother that the infant was infected during birth.
- Avoid the use of antibiotics except when absolutely necessary. This will help to reduce the chances for thrush to develop.

## Malnutrition

### MALNUTRITION

#### SYMPTOMS

Cries and fusses  
 Parents may worry that the child is not growing as he should  
 Evidence of poor growth rate on the growth chart  
 Child may be listless  
 Repeated attacks of diarrhea  
 History of any recent illness such as measles or pneumonia

#### SIGNS

Listless, weak, and unhappy  
 Poor weight gain on growth chart  
 Upper arm circumference less than 14 cm  
 Marasmus  
 Child very thin  
 Bones stand out  
 Decreased muscle mass and subcutaneous fat  
 Coarse hair  
 No edema of legs or face  
 Child quiet and listless

#### Kwashiorkor

Arms very thin, less than 14 cm around  
 Hair may have reddish color  
 Skin rash like flaking paint  
 Edema of legs and face

#### PATIENT CARE

*Children under six months of age with mild to moderate malnutrition*

- Encourage the mother to breast-feed her infant every three hours.
- Tell the mother to eat extra food so that she can produce enough milk for her infant. Body-building foods, such as beans, fish, and lentils, are especially important.
- Insist that the infant receive only breast milk. Tell the mother not to use bottled milk. Explain to the mother the danger of infection.
- If the mother cannot breast-feed her infant, show her how to use non-human milk safely. Demonstrate how to boil the milk and give it to the infant in a cup. Demonstrate how to prepare cereal or legume porridge. Tell the mother to supplement the milk with porridge three times a day.
- Weigh the child at least once each month, and chart the weight gain. Continue to encourage and guide the mother at each visit.

*Children over six months of age with mild to moderate malnutrition*

- Encourage the mother to continue breast-feeding her infant until the infant is more than two years of age.
- Encourage the mother to eat extra foods so that she can produce enough milk for her infant. Body-building foods, such as beans, fish, and lentils are most valuable.



- c. Demonstrate the preparation of porridge, using cereals and lentils. See Patient Care Procedure for Preparation of Super Porridge. Encourage the mother to supplement the infant's diet with foods such as fruit, vegetables, eggs, meat, or fish three times a day.
- d. If the mother cannot breast-feed her infant, demonstrate how to boil non-human milk and feed it to the infant with a clean cup. Insist that the mother avoid the use of a bottle.
- e. Tell the mother to continue feeding her infant when he becomes ill. Tell her to return to the health center if the child becomes ill.
- f. See the child at least once a month. Record his weight at each visit. Ask the mother what she is feeding the child. Encourage her efforts to improve her child's diet.

#### *Children with severe malnutrition*

- a. If the child is unconscious or too weak to swallow liquids or solids, transfer him to a hospital immediately.
- b. If the child has kwashiorkor or marasmus but is able to swallow liquids or solids, start treatment in his home or at the health center.
- c. The child must eat at least ten to twelve times a day. You must urge him to eat. Children with severe malnutrition have lost their appetite.
- d. If the mother can still breast-feed, encourage her to do so. The breast milk can be expressed and given by nasogastric tube if the child is too weak to suck the breast at first.
- e. Give the child at least six small feedings of porridge daily for the first week. As the child begins to improve, add extra feedings of vegetables, lentils, eggs, and other foods.
- f. If the child has Bitot's spots or night blindness, give him vitamin A.
- g. Weigh the child each day. The child with marasmus should begin to gain weight. If he loses weight or develops a respiratory infection, transfer him to a hospital. A child who is recovering from kwashiorkor will lose weight as the edema decreases. Then he should begin to gain weight. If the child with kwashiorkor gains weight over the first three or four days of treatment, transfer him to a hospital.

#### *Children who are recovering from severe malnutrition*

- a. Help the parents to understand the cause of their child's illness. Encourage them to increase the amount and the variety of foods that they give to their children.
- b. Encourage the parents to prepare porridge from cereals and lentils. Tell them that this is a valuable food for children who are malnourished. Tell them that it is also valuable for healthy children until they are old enough to eat the family foods.
- c. See the child each week and weigh him. When his weight has returned to the normal range, continue to see him monthly.
- d. Instruct the parents to feed their child when he becomes ill. Tell them that illness is not a reason to stop feeding the child.
- e. If more than one malnourished child from the same community requires treatment, see the children together. Teach the parents how they can improve their children's diets. Demonstrate the preparation of super porridge.

## Diarrhea and Dehydration

### DIARRHEA AND DEHYDRATION

#### SYMPTOMS

Five or more loose or watery stools a day  
Possible cramps  
Possible blood and mucus in stools

#### SIGNS

##### Mild Dehydration

Restlessness

##### Moderate Dehydration

Dry lips and mouth

Anterior fontanelle sunken in child under six months of age

Increased pulse and respiratory rate

##### Severe Dehydration

Skin tenting

Sunken eyes

Sunken anterior fontanelle

#### PATIENT CARE

*Children with mild dehydration or diarrhea without signs of dehydration*



- a. Teach the mother how to prepare oral rehydration fluid. See Patient Care Procedure for Preparation and Use of Oral Rehydration Fluid.
- b. Encourage the mother to continue breast-feeding her infant. Tell her to give the infant the oral rehydration fluid between breast-feedings.
- c. If the child is not breast-feeding, tell the mother to feed him soft foods and liquids until his stools begin to become less watery and loose.
- d. Look for signs of infection elsewhere in the body. Treat infection according to the type of infection it is. Do not use drugs except for specific infections.
- e. If the child has a fever, bring the temperature down. See Guide for Reducing Fever.
- f. If the child has signs of malnutrition, begin treatment for this condition as soon as possible.
- g. Tell the mother to bring her child back to the health center immediately if the diarrhea continues or vomiting develops.
- h. Before the child leaves the health center, be sure that the mother can prepare the oral rehydration fluid properly. And be sure that the child is taking fluids by mouth. Be sure that the mother knows how much fluid to give her infant and how often to give it.

#### *Children with moderate to severe dehydration*

- a. Give the child oral rehydration fluid immediately. Give him 20 ml of fluid for each kg of body weight over the first two hours. Continue to give the child this amount of fluid every two to three hours until the signs of dehydration have disappeared.
- b. If the child is vomiting or refuses to take fluids by mouth, begin an intravenous infusion. See Patient Care Procedures for Scalp Vein or Peripheral Vein Intravenous Rehydration.
- c. When you have started an IV, use Ringer's lactate or 5% dextrose in 1/2 normal saline. Give the child 20 ml for each kg of body weight as rapidly as possible. If the child still appears dehydrated, repeat this amount of fluid over the next thirty minutes.

- d. If the child continues to have diarrhea and will not take sufficient fluid by mouth, continue the intravenous. Use the following table as a guide for replacement of fluids.

WEIGHT OF CHILD	AMOUNT OF INTRAVENOUS FLUID
15 kg and over	100 ml per hour
10 to 15 kg	75 ml per hour
5 to 10 kg	50 ml per hour
Under 5 kg	25 ml per hour

- e. Do not give too much intravenous fluid. Watch the infant carefully for swelling around the eyelids. This swelling is an early sign of too much fluid. If swelling occurs, remove the intravenous needle. Continue to give fluids by mouth.
- f. Look for evidence of malnutrition. Begin treatment of this condition as soon as possible. Encourage the mother to continue to breast-feed her infant during the diarrhea illness.
- g. As soon as the child is rehydrated and the diarrhea improves, encourage the mother to begin giving her child appropriate foods.
- h. Teach the mother how to prepare and use oral rehydration fluid while the infant is being rehydrated. Be sure that the mother knows how to prepare and use the fluid before you send the child home.

#### PREVENTION OF DEHYDRATION

- a. Teach mothers that diarrhea quickly leads to drying out of the body.
- b. Teach mothers the dangers of diarrhea and dehydration.
- c. Show mothers how to prepare oral rehydration fluid and how to use the fluid when the child develops diarrhea.
- d. Urge mothers to continue to breast-feed their infants when the infants develop diarrhea.

#### PREVENTION OF DIARRHEA

- a. Encourage mothers to breast-feed their infants until the infants are two to three years of age.
- b. Explain the dangers of using a bottle in infant feeding. Demonstrate the use of a clean cup and spoon when the mother must feed the infant non-human milk.



- c. Teach mothers to boil all water that they give to their infants.
- d. Encourage mothers to wash their hands and their children's hands before eating and after using the latrine.
- e. Encourage mothers to wash all fruits and vegetables before feeding them to their children. Washing is most important when the mother gives the child raw fruits and vegetables.
- f. Encourage cleanliness in the home and the use of latrines.

- e. Encourage the mother to keep the child as quiet and calm as possible. Tell her that crying increases the stridor and difficulty breathing.
- f. If the child has a fever, reduce the fever with sponging. See Guide for Reducing Fever.
- g. If you cannot transfer a child with severe croup to a hospital, treat him with oral ampicillin or chloramphenicol. See Guide for Calculating Antibiotic Dosages. A virus causes the less severe form of croup. Therefore, antibiotics are not necessary.

## Common Infections of Children

### CROUP

#### SYMPTOMS

Recent cold and sore throat that suddenly became worse  
Barking cough  
Hoarseness

#### SIGNS

Stridor when breathing in  
Difficulty in breathing air into lungs  
Intercostal retractions

#### PATIENT CARE

- a. If the epiglottitis is swollen and red, transfer the child to a hospital immediately. His airway will become completely obstructed in a few hours. He will require a surgical opening in his throat.
- b. In the less severe type of croup, airway obstruction is less likely to occur. If the child has severe stridor, keep him at the health center. Take his pulse every two hours and examine him for evidence of cyanosis. If his pulse rises above 140 or he becomes blue, transfer him to a hospital.
- c. Tell the child's mother to increase the water vapor in the air. Tell the mother to hang wet towels near the bed and place a fan behind the towels. A steam kettle near the bed may be dangerous. However, it can increase the water vapor in the air.
- d. Tell the mother to give the child extra fluids. Tell her to offer the child a glass of water or other liquid every two or three hours.

### WHOOPING COUGH

#### SYMPTOMS

Difficulty breathing  
History of choking on mucus and vomiting  
History of cold that gradually worsened over one to two week period  
Coughing that becomes more frequent and more severe

#### SIGNS

Thick mucus in nose and throat  
Whooping after attacks of coughing

#### PATIENT CARE

- a. Choking on thick mucus is a serious problem. Tell the mother to lay the child on his side. Show her how to hold the child with his head down while patting him on the back. This treatment may help to loosen the mucus and prevent choking.
- b. When the child is breast-fed, encourage the mother to feed the infant more often than normal. The infant is often weak and unable to suck properly. He is very likely to lose weight and become malnourished.
- c. Encourage the parents of an older infant to feed him more often than normal. Tell them to give the child soft food. Tell them to give the child smaller portions more frequently. Tell them to feed the child again if he vomits the food.
- d. Weigh the child and treat him with oral ampicillin. See Guide for Calculating Antibiotic Dosages. Continue antibiotic treatment for seven days.



- e. Watch carefully for signs of pneumonia. If pneumonia develops, treat the infant for this condition. See Patient Care Guide for Pneumonia.

#### PREVENTION

Give every infant a course of three combined DPT shots at three, five, and seven months. Follow these shots with a booster shot a year after the last of the three basic injections.

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## MEASLES

### SYMPTOMS

Rash that spreads from face to rest of body  
History of recent fever, red eyes, runny nose, and cough

### SIGNS

Fever, runny nose, red eyes, cough  
White spots with a red base on inside of cheeks  
Rash on face and body  
Rash that runs together after few days

### PATIENT CARE

- a. Encourage the mother to give her child extra fluids. Tell her that one glass of water or juice every two hours will help to prevent dehydration.
- b. Tell mothers to continue to breast-feed their infants. Tell them to give older children extra feedings. Measles is far more dangerous when the child is malnourished.
- c. Reduce the fever with sponging and aspirin. See Guide for Reducing Fever. Teach the mother how to bring the fever down at home.
- d. If a small infant is unable to suck or swallow adequately, transfer him to a hospital for care.
- e. Examine the child daily. Look for signs of pneumonia, ear or throat infections, diarrhea, or dehydration. Treat these conditions according to Patient Care Guides.
- f. If the child becomes very ill, transfer him to a hospital. Children with measles who develop convulsions, severe skin rashes, or severe dehydration are likely to die. When they are malnourished, they are also likely to die from measles.

#### PREVENTION

You can prevent measles by giving measles vaccine to the children in your community. Measles vaccine is most effective when given to children who are nine to twelve months of age. If the child has had measles vaccine before nine months of age, repeat the immunization at a subsequent visit. The vaccine may not be effective in younger infants.

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## MUMPS

### SYMPTOMS

Pain when chewing  
Swelling of jaws  
No history of mumps

### SIGNS

Swollen, tender, and firm parotid salivary glands

### PATIENT CARE

- a. Mumps is a virus infection. No treatment is available to cure mumps.
- b. Give the patient aspirin to reduce the pain and discomfort. Give him 60 mg for each year of age, up to ten years. Give children over ten years 600 mg of aspirin every four hours.
- c. Warm or cold packs against the cheek may give the patient some comfort.
- d. Advise the mother to prepare liquid or soft foods that require little or no chewing.

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## CHICKEN POX

### SYMPTOMS

Red rash on chest and abdomen  
Mild headache, fever, and loss of appetite

### SIGNS

Red macules on chest and abdomen that develop into vesicles and then lesions with scabs  
Possible infection of skin lesions caused by scratching

### PATIENT CARE

- a. No treatment will cure chicken pox. The illness is caused by a virus.



- b. Teach the mother to prevent infection of the skin rash by washing the child with soap and water daily. Teach her to cut his fingernails short and keep them clean. Tell her that when the child scratches his skin, he will be less likely to cause an infection if he has short, clean fingernails.
- c. If the child develops impetigo with fever, give him procaine penicillin G IM twice a day for five days. See Guide for Calculating Antibiotic Dosages. Also teach the mother how to apply warm soaks to the skin lesions until the skin lesions dry up.

## Problems of Infants and Children

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### POLIOMYELITIS

#### SYMPTOMS

- Fever and stiff neck
- Sudden weakness of arm or leg
- Severe muscle cramps and spasms followed by paralysis of affected arm or leg

#### SIGNS

- Inability to move affected arm or leg
- Decreased or absent reflexes in affected limb

#### PATIENT CARE

- a. Keep the patient as comfortable as possible. Give him fluids every few hours. Give him aspirin every four hours to ease his discomfort. Transfer the patient to a hospital.
- b. While the patient is recovering from the acute illness, move all of the involved joints through a full range of motion many times each day. Encourage the patient to cooperate. He must try to make the same movements himself. In this way, you can help to prevent deformity. Often, the patient will regain some strength in muscles that have weakened during the acute illness.
- c. Teach the family how to work with the patient. Teach them to help the patient move all of his joints by making the movements for him and encouraging him to participate. Tell them to continue this work over many months.

#### PREVENTION

Oral polio vaccine, given during early infancy, will protect children from paralysis. Immunization of the entire community is the most effective way to prevent poliomyelitis.

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### RHEUMATIC FEVER

#### SYMPTOMS

- High fever, tiredness, and weakness
- Swelling and pain in one or more large joints
- History of tonsillitis within past two or three weeks

#### SIGNS

- High fever
- Weakness
- Swollen, red, and tender large joints
- Inflammation that moves from joint to joint
- Possible heart murmur

#### PATIENT CARE

- a. When you suspect that the patient has rheumatic fever, refer him to a hospital. You must confirm the diagnosis.
- b. A child with rheumatic fever requires rest. Encourage the parents to keep the child in bed as much as possible. Tell them to restrict the child's physical exertion until the fever is completely gone.
- c. Aspirin in large doses can reduce the fever and the joint swelling and inflammation. However, you must give large doses of aspirin. Weigh the child. Multiply his body weight by 130 mg to obtain the recommended daily dose of aspirin. Then divide this dosage into four to six smaller doses.
- d. The toxic effects of aspirin include ringing in the ears, nausea, and vomiting. If these symptoms develop, reduce the dose of aspirin.
- e. Continue the aspirin for a total of ten weeks. Then gradually reduce the dosage over a period of one week. If symptoms of fever or joint pain return, continue the aspirin for another four weeks.
- f. If the child has a high fever, bring the fever down by sponging the child. Demonstrate this technique to the parents.

- g. Give the child penicillin V four times a day for ten days. Alternatively, give the child one injection of benzathine penicillin. See Guide for Calculating Antibiotic Dosages.

#### PREVENTION

A child who has had one attack of rheumatic fever is very likely to get a second. You can reduce this risk by giving the child 1200 mg of benzathine penicillin IM once a month. You may substitute either 250 mg of penicillin V daily or 1 g of sulfadiazine daily. You should continue treatment until the patient is twenty years of age. By preventing rheumatic fever you can also prevent rheumatic heart disease.

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### SICKLE CELL ANEMIA

#### SYMPTOMS

Severe pain in bones, joints, abdomen, or chest  
History of anemia and sickle cell crises  
Poor growth

#### SIGNS

Enlarged, tender finger and toe joints  
Jaundice  
Anemia  
Enlarged liver and spleen during early childhood  
Long slender limbs and short trunk

#### PATIENT CARE

- a. When the patient has a severe attack of pain, he requires a large amount of fluid. Encourage him to drink a glass of liquid every hour. If he is having severe abdominal pain or vomiting, start an intravenous infusion and give him 5% dextrose in 1/2 normal saline.

Give an adult 2000 ml per day of fluid. Give children 50 ml per kg of body weight per day.

- b. Give the patient aspirin for relief of pain. Give 60 mg for each year of age up to ten years. Give children ten and older the standard adult dose of 600 mg every four hours.
- c. Look for evidence of pneumonia or infection in the bone. These complications occur frequently. If you suspect one of these complications, refer the patient to a hospital. If the patient is in very severe pain, transfer him to a hospital.
- d. Pregnant patients with sickle cell anemia require extra folic acid. Give the patient 5 mg of folic acid daily throughout pregnancy and lactation.

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### OSTEOMYELITIS

#### SYMPTOMS

Sudden onset of high fever, chills, and extreme sickness  
Throbbing pain in the infected bone

#### SIGNS

Tenderness over infected bone  
Child refuses to use affected extremity  
Swelling, redness, and heat over infected bone

#### PATIENT CARE

- a. When you suspect that the patient has an infection in his bone, refer him to a hospital immediately. He will require very high doses of antibiotics IM or IV for several weeks. He may require surgery.
- b. Splint the arm or leg that is infected. This will provide some comfort to the patient while he is on his way to the hospital.



# CHILD SPACING

## Natural Methods

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### ABSTINENCE

If a woman does not have intercourse, she will not become pregnant.

#### ADVANTAGES

No side effects

#### DISADVANTAGES

Unreliable

Even when the woman practices the method correctly, the couple risks pregnancy. Strictly limits intercourse unless the couple uses a different method of child spacing during the woman's fertile period.

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### MALE WITHDRAWAL

The man withdraws his penis from the woman's vagina before he ejaculates.

#### ADVANTAGES

Simple and inexpensive

Requires no equipment or supplies

#### DISADVANTAGES

Requires self-discipline

May reduce the couple's satisfaction with intercourse

Even if the timing is correct, the couple risks pregnancy because some sperm may be present in the moisture at the tip of the penis before the man ejaculates.

#### PATIENT INSTRUCTIONS

1. Immediately after menstruation, begin checking the mucus in your vagina.
2. First, wash your hands and clean your fingernails.
3. Then, reach into your vagina and remove some mucus for examination.
4. In some cycles, you may find no noticeable mucus for one or more days after menstruation. Your vagina will feel dry.
5. As the cycle progresses, you will find cloudy, tacky mucus.
6. As ovulation approaches, the mucus increases and becomes clear, slippery, and stretchy, like raw egg white. The mucus may stretch 2 cm to 10 cm. Days when the mucus looks like this are called peak days.
7. Ovulation occurs within twenty-four hours after the last peak day ends.
8. From the first sign of mucus until the fifth day after ovulation, you are most fertile. You should avoid intercourse during this period, unless you use another method of child spacing.
9. Your unfertile time begins the fifth day after ovulation and continues through menstruation. If you find mucus during this period, it will be cloudy and tacky. You may resume unprotected intercourse during your unfertile time.
10. To determine your fertile time more accurately, use a combination of Mucus Ovulation, Rhythm, and Temperature Change methods.

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### LACTATION

Breast-feeding after giving birth, especially before menstruation has returned, reduces the woman's chances of becoming pregnant.

#### ADVANTAGES

Requires no training or equipment

#### DISADVANTAGES

Unreliable

Woman can become pregnant before her first postpartum menstruation

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### MUCUS OVULATION

The woman learns to recognize the quality and quantity of vaginal mucus in order to avoid intercourse during her fertile period.

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## RHYTHM

The couple has intercourse only during the periods of the month when the woman is not likely to be fertile. During the woman's fertile period, the couple may choose to abstain or to use a different method of child spacing.

### ADVANTAGES

Requires no pills or mechanical aids  
Helps a woman to become more aware of her body's natural cycles

### DISADVANTAGES

Unreliable  
Ineffective if the woman does not use the method properly  
Even when the woman uses the method properly, she risks pregnancy  
Less reliable if the woman ovulates irregularly

### PATIENT INSTRUCTIONS

1. Record the first day of each menstrual cycle for twelve cycles.
2. Subtract 18 from the number of days in your shortest cycle. The resulting number is the first day of your fertile period.
3. Subtract 11 from the number of days in your longest cycle. The resulting number is the last day of your fertile period.
4. For example, if your shortest cycle is 27 days,  $27 - 18 = 9$ . If your longest cycle is 34 days,  $34 - 11 = 23$ . Your fertile period is from day 9 through day 23 of your menstrual cycle.
5. When you have determined your fertile period, you should avoid intercourse during this period, unless you use another method of child spacing.
6. To determine your fertile period more accurately, use a combination of Mucus Ovulation, Rhythm, and Temperature Change methods.

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## TEMPERATURE CHANGE

Normally, a woman's body temperature drops slightly at the time of ovulation. Then her temperature rises throughout the remainder of the menstrual cycle. To detect the changes in

body temperature, the woman must use a special thermometer that measures temperature change in 1/10th of a degree intervals.

### ADVANTAGES

No side effects

### DISADVANTAGES

Unreliable  
The woman cannot use temperature to determine safe days before ovulation  
Infection or illness can cause a temperature rise that is not related to ovulation

### PATIENT INSTRUCTIONS

1. Write down your temperature immediately after waking, before you eat, drink, or smoke. Keep the thermometer under your tongue with your mouth closed for four to five minutes before you record your temperature.
2. The fourth day after your temperature rises is the beginning of your unfertile period.
3. To determine your fertile period more accurately, use a combination of Mucus Ovulation, Rhythm, and Temperature Change methods.

## Chemical and Barrier Methods

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### SPERMICIDES

The woman inserts spermicidal foam, cream, or jelly into her vagina to kill the sperm directly. The spermicide also blocks the sperm from entering the uterus through the cervix. Foams, creams, and jellies are not sufficient child spacing methods when used alone.

### ADVANTAGES

Easy to use  
No examination necessary

### DISADVANTAGES

Not sufficient when used alone  
May irritate the vagina or the penis  
May be expensive

### PATIENT INSTRUCTIONS

Spermicidal cream or jelly

1. Use spermicidal cream or jelly in combination with a diaphragm.
2. Place spermicidal cream or jelly in the dia-



phragm cup before inserting the diaphragm.

3. Insert the diaphragm within two hours before intercourse.
4. Leave the diaphragm in place for six to eight hours after intercourse.

#### Spermicidal foam

1. Use spermicidal foam in combination with a condom.
2. Use two full applicators of spermicidal foam each time you have intercourse.
3. Insert the spermicidal foam within fifteen minutes before intercourse.
4. Leave the spermicidal foam in your vagina for six to eight hours after intercourse.

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## CONDOMS

A condom is a thin rubber sheath that fits over the penis and prevents semen from entering the vagina. The man must put on a new condom for each intercourse.

#### ADVANTAGES

Inexpensive, readily available, easy to use  
Provide some protection against problems spread by sexual contact

#### DISADVANTAGES

Putting condom on just before inserting the penis may disrupt the mood  
Condom makes the man's penis less sensitive  
If condom is not lubricated, it may irritate the woman's vagina

#### PATIENT INSTRUCTIONS

1. Use spermicidal foam in combination with a condom.
2. Never use petroleum jellies such as petrolatum ointment as a lubricant. Such jellies cause the condom to weaken and tear.
3. Roll the condom onto the erect penis before the penis is in the vagina, not just before ejaculation.
4. Use a new condom for each intercourse.
5. Store condoms away from heat.

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## DIAPHRAGM

A diaphragm is a shallow, soft rubber cup. The

woman inserts a diaphragm into her vagina so that it fits closely over the opening to the cervix. When properly fitted and inserted, the diaphragm acts as a barrier against sperm.

#### ADVANTAGES

No side effects or dangers when diaphragm is properly inserted  
Very effective when used with spermicidal jelly or cream

#### DISADVANTAGES

Must be inserted before each intercourse  
Insertion requires clean water and facilities

#### PATIENT INSTRUCTIONS

See Patient Care Procedures for Finding the Correct Size Diaphragm for a Woman, and for Teaching a Woman to Use a Diaphragm.

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## INTRAUTERINE DEVICES (IUDs)

The woman has a small metal or plastic device inserted into her uterus. The woman leaves the IUD in place as long as the couple desires to have protection from pregnancy.

#### ADVANTAGES

Effective method of contraception  
Easy to remove when the couple wants to have another baby

#### DISADVANTAGES

Can tear a hole in the uterus if not inserted properly  
Unsterile IUD insertion can lead to infection in the uterus  
In some women, will not remain in place, creating possibility of unwanted pregnancy  
Sometimes causes low backache, cramps, and increased menstrual bleeding  
Possible painful insertion, especially if the woman has never been pregnant

#### PATIENT INSTRUCTIONS

See Patient Care Procedures for Inserting an Intrauterine Device (IUD), and for Removing an Intrauterine Device (IUD).

#### WARNING

Do not insert an IUD if you detect any of the following problems:

Any history of painful menstruation, heavy



- bleeding during menstruation, or bleeding between menstrual periods
- Any history of gonorrhea or severe pelvic infection
- Any history of heart disease
- Any history of anemia
- The woman has sickle cell disease
- The woman is pregnant or appears to be pregnant
- The woman is suffering from vaginitis or infection of the womb
- The woman has an inflammation of the cervix or fibroid tumor in the uterus

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## ORAL CONTRACEPTIVES

Each day the woman takes a pill that contains artificial sex hormones. These hormones prevent her ovaries from producing eggs. When the ovaries do not produce eggs, the woman cannot become pregnant.

### ADVANTAGES

When the woman takes the pills regularly, the couple has almost complete protection from unwanted pregnancy

### DISADVANTAGES

Side effects include nausea, blood clots in the legs, increased blood pressure or hypertension, headaches, increased blood sugar, vaginal bleeding or staining between menstrual periods, increased irritation or depression, weight gain from retention of water, and darkening of the skin

### PATIENT INSTRUCTIONS

1. Take one pill at the same time every day.
2. Begin with the first white pill, five days after your menstruation begins.
3. Take one pill every day, following the line on the packet.
4. Take all of the white pills before you start taking the brown pills.
5. You will probably start to menstruate while you are taking the brown pills.
6. Continue taking a pill every day until you have finished the packet.
7. Two days before you finish the first packet, return to the clinic for more packets and a follow-up visit.
8. Start a new packet, beginning with the first

white pill, the day after you finish the old packet.

9. If you forget to take a pill for a day, take that pill as soon as you remember it. Also take the regular pill for that day. If you forget to take pills for two days, use another method of child spacing for the rest of that month. However, continue to take one pill a day until you finish the packet.

### FOLLOW-UP

1. See the woman two days before she finishes the first packet of pills. Ask her to explain to you how she has been taking the pills. Make sure she is taking them correctly. If she has stopped taking them, perhaps another method of child spacing would be better for her.
2. If the woman has had no problems, give her a three-month supply of pills.
3. If the woman has had any serious side effects, refer her to a hospital. Refer her if she has had any pain in her legs, any swelling, any severe headaches, or any difficulty with her vision.
4. Each year that the woman is taking oral contraceptives, take a medical history and carry out a complete physical examination, including a pelvic examination.

### WARNING

Do not prescribe oral contraceptives if you detect history of any of the following problems:

- Blood clots or inflammation of leg veins
- Breast lumps or breast cancer
- High blood pressure
- Severe headaches
- Liver disease or jaundice
- Heart disease, including rheumatic heart disease
- Cancer of the uterus or cervix
- Unexplained vaginal bleeding for more than one week

## Permanent Methods

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### VASECTOMY

A vasectomy is a small operation to cut the tubes that carry sperm to the penis.



#### ADVANTAGES

Quick and simple

No effect on man's sexual desire or ability to have intercourse

No other method of contraception necessary

#### DISADVANTAGES

Some initial discomfort and risk of infection

Permanent method of contraception

#### PATIENT INFORMATION

1. Be sure the man does not want any more children.
2. Be sure the man understands that a vasectomy will not make him weak. Assure him that the operation will not change his sexual behavior.
3. Advise the man not to ride a bicycle or a horse for a week after the operation. Advise him not to do any heavy work for a week after the operation.
4. Advise the man not to have intercourse for one week after the operation. Advise him to use a condom or some other child spacing method for the first fifteen times that he has intercourse after the operation. Tell him that after the first fifteen times he will no longer need to use any contraceptive methods or devices.

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#### TUBECTOMY

A tubectomy is a small operation to cut the tubes that carry the eggs from the ovaries to the uterus. The best time for a woman to have a tubectomy is one to three days after she has a baby. However, a woman can have a tubectomy at any time.

#### ADVANTAGES

Quick and simple

No other method of contraception necessary

#### DISADVANTAGES

Some initial discomfort and risk of infection

Permanent method of contraception

#### PATIENT INFORMATION

1. Be sure the woman understands that a tubectomy is a permanent method of contraception.
2. Tell the woman a tubectomy will not have any effect on her ability to enjoy intercourse. Tell her she will continue to menstruate.
3. Advise the woman not to have intercourse until the incision has healed.
4. Advise the woman not to do any heavy work for a week or two after the operation.





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